



*Personal Computer  
Hardware Reference  
Library*

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# IBM RT PC Guide to Operations

75X0178

**Exhibit**  
**IBM 6150/6151 System Unit Limited Warranty**

IF YOU PURCHASED THE IBM 6150/6151 SYSTEM UNIT (MACHINE) DIRECTLY FROM INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM), OR ANOTHER IBM ORGANIZATION, UNDER AN AGREEMENT FOR PURCHASE OF IBM MACHINES, THE WARRANTY PROVISIONS THEREIN SHALL PREVAIL AND THIS EXHIBIT AND THE ENCLOSED STATEMENT OF LIMITED WARRANTY SHALL NOT APPLY.

WARRANTY SERVICE DESCRIBED IN THE ENCLOSED STATEMENT OF LIMITED WARRANTY (FORM #Z125-3744) IS AVAILABLE ONLY FOR MACHINES PURCHASED AND LOCATED IN THE UNITED STATES OR PUERTO RICO.

IF YOU PURCHASED THIS MACHINE FROM A SUPPLIER AUTHORIZED BY AN IBM ORGANIZATION TO MARKET THIS MACHINE IN OTHER THAN THE UNITED STATES OR PUERTO RICO, WARRANTY INFORMATION IS AVAILABLE ONLY FROM SUCH SUPPLIER.

**I. Date of Installation (Warranty Start Date):**

The Date of Installation, which is the warranty start date, will be the day (Monday through Friday) following the date of delivery of the Machine to you from IBM or an IBM Authorized Dealer, as applicable. Delivery is deemed to be complete when the Machine is placed in your possession; however, when the Machine is shipped to you, delivery will be deemed to be complete three days after the date of shipment from IBM or an IBM Authorized Dealer, as applicable. You are responsible to set up this Machine in accordance with the instructions furnished by IBM.

**II. Warranty Duration:**

One year for the 6150/6151 System Units and the features and/or options installed in the 6150/6151 System Unit.

**III. Type of Service:**

IBM On-Site Repair (IOR)

**IV. Period of Warranty Service Availability:**

IBM On-Site Repair, when rendered by IBM, is available 24 hours per day, seven days per week.

IBM On-Site Repair, when rendered by an IBM Authorized Dealer, is available during the hours and days prescribed by such Dealer.

**V. Provider of Warranty Service:**

IBM or the IBM Authorized Dealer from whom the IBM 6150/6151 System Unit was purchased.

If an IBM Authorized Dealer elects to assign Warranty Service to IBM or another IBM Authorized Dealer on the 6150/6151 System Unit, the dealer from whom the System Unit was purchased will notify you of the provider of such service.

There is enclosed the IBM Statement of Limited Warranty.

You may be required to provide a dated proof of purchase of this Machine from IBM or an IBM Authorized Dealer and evidence of the date of delivery to you in order to obtain warranty service. If you have any questions regarding warranty service, contact your IBM Authorized Dealer or your local IBM service branch office.



## Statement of Limited Warranty

### DEFINITIONS

The term "Machine" as used herein refers to machines and/or their features, model conversions, machine elements and accessories unless the context requires individual reference.

The terms "Machines" and "machines" are used in substitution for the terms "Products" and "products," respectively. Such latter terms appear in selected IBM agreements.

The term "failing machine" refers to a machine or machine element requiring warranty service. The term "exchange machine" refers to a machine or machine element provided by IBM to the Customer under an Exchange Type of Service.

The term "programming" shall mean such programming as IBM may make generally available, without separate charge, for machines of the types ordered by the Customer.

### WARRANTIES

Machines purchased from IBM under an agreement for purchase of IBM machines or from an IBM approved Remarketer, or an IBM Authorized Dealer, Distributor or Wholesaler will be 1) newly manufactured by or for IBM from new and serviceable used parts which are equivalent to new in performance in these Machines, 2) assembled by or for IBM from serviceable used parts, or 3) Machines which have been previously installed.

IBM warrants that on the Date of Installation each Machine will be in good working order and will conform to IBM's official published specifications which are available upon request.

The Warranty Period for each Machine commences on its Date of Installation.

Warranty service as described herein may be provided by IBM, an applicable IBM Authorized Dealer, or an IBM selected independent contractor, as indicated in the applicable Exhibit.

IBM will not provide warranty service hereunder for Machines or programming located outside the United States and Puerto Rico.

#### Service and Parts Warranty

Commencing on the Date of Installation of each machine, model upgrade and feature addition, and continuing for the duration of the Warranty Period, IBM agrees to provide the availability of warranty service, at no additional charge except as set forth in this subsection or in the subsection entitled "Travel Expense," to keep the machines, model upgrades and feature additions in, or restore them to, good working order. Warranty service will be provided by repairing the machines, model upgrades or feature additions or exchanging the machines under one of the Types of Service described in the subsection entitled "Types of Service." The Specific Type of Service for each machine, model upgrade or feature addition will be indicated in the applicable Exhibit. Warranty options that provide alternate Types of Service are available for certain Machines under an IBM maintenance agreement.

It is the Customer's responsibility to determine when a machine or machine element requires warranty service. Before requesting warranty service, the Customer will perform any problem determination procedures provided by IBM, and if service is required, the Customer will follow the service request procedures provided by IBM.

When the Customer presents a failing machine to IBM under a Repair Type of Service, IBM will provide warranty service to restore the failing machine to good working order. Repair Types of Service include remedial maintenance and may include preven-

tive maintenance based on the specific needs of individual machines as determined by IBM. Repair Types of Service may also include lubrication, adjustments and replacement of parts, all as deemed necessary by IBM. Parts, which may be used parts, will be furnished on an exchange basis, and the replaced parts become the property of IBM. When a failing machine is to be repaired under a Repair Type of Service, the Customer is responsible to remove or implement other safeguards to protect all programming, programs, data and removable storage media before such repair.

When the Customer presents a failing machine to IBM under an Exchange Type of Service, it becomes the property of IBM at the time of exchange. An exchange machine may not be new, but will be in good working order, and becomes the Customer's property at the time of exchange. IBM reserves the right to verify that warranty service for a failing machine is required prior to providing an exchange machine. When a failing machine is exchanged, the Customer will remove all programming, programs, data and removable storage media, and all non-IBM parts, options, alterations and attachments before such exchange. The Customer agrees that all such items not removed will be deemed to have been discarded by the Customer. The Customer will not present to IBM a failing machine for exchange which is defaced, altered or damaged beyond repair. (Repair is as described in the preceding paragraph.) However, if upon inspection IBM determines it has received in exchange a failing machine in such condition, the exchange will be nullified and each party will return to the other the machine or machine element in its possession.

The Period of Warranty Service Availability for IBM On-Site Repair and IBM On-Site Exchange Types of Service are specified in the applicable Exhibit. Outside such Period, warranty service, if requested by the Customer and provided by IBM, will be subject to charge for travel expense plus travel, waiting and service time at IBM's then applicable hourly service rates and minimum charges; however, there will be no additional charges for parts.

The Period of Warranty Service Availability for Customer On-Site Exchange, Customer Carry-In Exchange and Customer Carry-In Repair Types of Service are specified in the applicable Exhibit.

Warranty service described herein does not assure uninterrupted operation of the Machines. IBM may, at its option, store on the Customer's premises maintenance equipment and/or parts that IBM deems necessary to fulfill this warranty.

During the Warranty Period, engineering changes, determined applicable by IBM, will be controlled by IBM and installed as specified by IBM on the Machines. The Customer may, by providing notice subject to written confirmation by IBM, elect to have only mandatory changes, as determined by IBM, installed on Machines so designated.

IBM shall have full, free and safe access to the Machines to provide IBM On-Site Types of Service thereon. The Customer shall promptly inform IBM of any change in a Machine's location during the Warranty Period.

In respect to warranty service provided by IBM, the Customer is responsible for all risk of loss of, or damage to, Machines owned by other than IBM during the period such Machines are in transit to and from IBM, except for loss or damage caused by IBM's negligence. However, IBM is responsible for risk of loss of, or damage to, Machines owned by other than IBM while in pos-



session of IBM or in transit from IBM by an IBM selected carrier whose expenses were prepaid by IBM.

The Customer represents and warrants that, at the time a failing machine becomes IBM's property, it will be free of any outstanding liens, security interests or other encumbrances held by any third party.

If the Warranty Period expires on a Friday or Saturday, it will be extended so that the last day of such Warranty Period will be on the following Sunday.

### **Types of Service**

#### **IBM On-Site Repair (IOR)**

IBM will provide warranty service for the failing machine at the Customer's location.

#### **IBM On-Site Exchange (IOE)**

IBM will 1) deliver the exchange machine to the Customer's location, 2) disconnect the failing machine, 3) connect the exchange machine, 4) verify its operation, and 5) remove the failing machine from the Customer's location.

#### **Customer On-Site Exchange (COE)**

IBM will have an exchange machine delivered to the Customer's location. The Customer will 1) disconnect the failing machine and prepare it for shipment to IBM, 2) connect the exchange machine, and 3) verify its operation. The Customer will follow IBM's instructions regarding the shipment of the failing machine to IBM. Such shipment will be at IBM's expense.

#### **Customer Carry-In Exchange (CCE)**

The Customer will 1) deliver the failing machine to an IBM Service/Exchange Center or other IBM designated location, 2) pick up the exchange machine and take it to the Customer's location, 3) connect it, and 4) verify its operation.

The Customer, in lieu of such delivery and pick up, may ship the failing machine prepaid, in the original shipping container or equivalent, to one of the designated IBM Service/Exchange Centers designated for this delivery method. IBM will then ship the exchange machine to the Customer's location, prepaid, within the United States and Puerto Rico.

#### **Customer Carry-In Repair (CCR)**

The Customer will 1) deliver the failing machine to an IBM Service/Exchange Center or other IBM designated location, 2) when the failing machine is repaired, pick it up and return it to the Customer's location, 3) connect it, and 4) verify its operation.

The Customer, in lieu of such delivery and pick up, may ship the failing machine prepaid, in the original shipping container or equivalent, to one of the IBM Service/Exchange Centers designated for this delivery method. IBM will ship the repaired machine to the Customer's location, prepaid, within the United States and Puerto Rico.

### **Programming**

IBM warrants that, when shipped to the Customer, programming designated by IBM for use with a Machine and for which programming services are available will conform to IBM's official published specifications which are available upon request.

IBM does not warrant that functions contained in programming will operate in the combinations which may be selected for use by the Customer or will meet the Customer's requirements.

**ALL OTHER PROGRAMMING IS DISTRIBUTED ON AN "AS IS" BASIS.**

### **Additional Provisions for Features and Model Conversions**

IBM's warranty for each feature addition or model upgrade requires that the machine on which it is installed is at the then current engineering-change level, is the specific serial-numbered machine for which it was ordered and has been modified only with changes obtained from IBM specifically for that serial-numbered machine. If these conditions are not met, IBM will attempt to install non-Customer set-up feature additions and model upgrades on the machine, and, if such attempt results in an incorrectly functioning machine, upon Customer request and at IBM's then applicable hourly service rates and minimum charges, parts and material prices and travel expense, IBM will remove the features and/or model upgrades and restore the machine to its prior condition. If such features or model upgrades did not involve the removal of parts which became the property of IBM, such features and model upgrades remain the property of the Customer. If such features or model upgrades did involve the removal of parts which became the property of IBM, such features and model upgrades become the property of IBM and the restored parts become the property of the Customer.

For a feature removal, model downgrade or reinstallation of a previously purchased feature or model conversion, a three-month parts warranty will apply to additional parts, if any, supplied by IBM.

### **Additional Provisions for Accessories**

Accessories have a three-month Warranty Period unless otherwise specified by IBM. During the Warranty Period, the Customer will remove any defective or failing accessory and ship it prepaid to the designated IBM location. IBM will replace such accessory and ship the replacement to the Customer without charge.

### **Additional Provisions for Machines Containing Funds**

The Customer is responsible for removing, controlling and replacing or reloading funds contained in the Machines. IBM will service Machines containing funds only when the cash container cannot be opened prior to repair by IBM, in which case the Customer will remove the funds as soon as the container has been opened.

### **Services for Additional Charge During the Warranty Period**

The services for additional charge described in this subsection are not warranty services. However, unless such services are provided under another written agreement between the Customer and IBM, during the Warranty Period, the following services, if available, will be provided by IBM to the Customer at IBM's i) then generally available hourly service rates and minimum charges for IBM service time, including travel and waiting time, ii) parts and material prices then generally in effect, and iii) charges for travel and shipping expense, all as applicable:

1. Repair of Machine damage, replacement of parts or increase in service time caused by —
  - a. failure to continually provide a suitable environment prescribed by IBM including adequate space, electrical power, air conditioning and humidity control;
  - b. neglect; misuse, including use of the Machines for purposes other than for which designed;
  - c. accident; disaster, including water, wind and lightning; transportation; vandalism or burglary;
  - d. alterations, including any deviation from IBM's Machine design;
  - e. attachments, including any interconnection to the Machine of non-IBM equipment or devices not under an IBM maintenance agreement;
  - f. IBM Machines, other Machines or accessories, except those IBM Machines, other Machines or accessories



- that are owned by IBM, under warranty from IBM or under an IBM maintenance agreement;
- g. conversions from one IBM model to another or installation or removal of an IBM feature whenever any of these activities was performed by other than IBM, except that this item (g) will apply only during the first three-month period subsequent to such Machine modification; and
  - h. maintenance or repair of the Machine not performed by IBM;
2. Repair of Machine damage, replacement of maintenance parts (due to other than normal wear) or repetitive service calls caused by the use of, inadequate use of, or failure to use, supplies;
  3. Service to accessories other than as provided in the subsection entitled "Additional Provisions for Accessories" of this Section;
  4. Inspection of altered Machines;
  5. Replacement or addition of parts and increase in service time, associated with the installation by IBM of an engineering change required due to the conversion of one IBM model to another or installation or removal of an IBM feature whenever any of these activities was performed by other than IBM;
  6. Rearrangement or relocation of Machines and provision of necessary materials; and
  7. Replacement of a part not furnished for the Machine by IBM with a directly interchangeable IBM maintenance part,

and any increase in service time associated with such activity, except that IBM will not replace any part which is included in an alteration.

#### **Travel Expense**

There will be no charge for travel expense associated with warranty service or programming service during the applicable Period of Warranty Service Availability except that actual travel expense will be charged when the site at which the Machine is located is normally inaccessible by both private automobile and scheduled public transportation.

#### **Exclusions**

The warranties stated herein do not include 1) furnishing supplies, painting or refinishing the Machine or furnishing material therefor, 2) electrical work external to the Machines, 3) installation, maintenance or removal of alterations or attachments to the Machines, and 4) any service which is impractical for IBM to render because of alterations in, or attachments to, the Machines. IBM does not warrant that the operation of Machines or programming will be uninterrupted or error free or that all programming errors will be corrected.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.







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Hardware Reference  
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# IBM RT PC

## Guide to Operations

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## Second Edition (September 1986)

This is a major revision of and obsoletes the first edition of *IBM RT PC Guide To Operations*.

This edition applies to all subsequent releases until otherwise indicated in new editions or technical newsletters. Changes are made periodically to the information herein; these changes will be incorporated in new editions of this publication.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM licensed program in this publication is not intended to state or imply that you can use only IBM's licensed program. You can use any functionally equivalent program instead.

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Products are not stocked at the address given below. Request copies of this product and technical information about the system from your retail outlet or IBM representative.

A reader's comment form is provided at the back of this publication. If the form is missing, address your comments to IBM Corporation, Department 997/998, 11400 Burnet Road, Austin, Texas 78758. IBM may use or distribute whatever information you supply in any way believed appropriate without incurring any obligation to you.



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## Federal Communications Commission (FCC) Statement

**Warning:** This equipment has been tested and found to comply with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to correct the interference.

## Instructions To User

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, the equipment may cause interference to radio communications.

The equipment has been tested and found to comply with the limits for a Class A computing device according to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

If this equipment causes interference to radio communications, which can be determined by turning the equipment off and on, try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
- Ensure that card mounting screws, attachment connector screws, and ground wires are tightly secured.

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- Ensure that card slot covers are in place when no card is installed.
  - If peripherals not offered by IBM are used with this equipment, it is suggested to use shielded, grounded cables, with in-line filters if necessary.

Consult the dealer service representative for additional suggestions.

IBM is not responsible for any radio or television interference caused by unauthorized modifications to this equipment. The user is responsible for correcting such interference.



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## About This Book

### Purpose

This book describes the various IBM devices available for the IBM RT Personal Computer<sup>1</sup>. Procedures for the day-to-day use of the IBM RT<sup>1</sup> PC are also provided. Read this book to learn how to:

- Operate the IBM 6150 and 6151 system units
- Handle diskettes
- Use diskette drives, fixed-disk drives, the IBM RT PC Keyboard and the IBM RT PC Mouse
- Clean the IBM RT PC Mouse
- Operate the supported displays
- Describe additional input device
- Move the IBM 6150 and 6151 system units.

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<sup>1</sup> Trademark of International Business Machines Corporation

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## Audience

This book is intended for anyone who uses the IBM RT PC<sup>2</sup>. This book should be helpful to people who need introduction to the system.

## How to Use This Book

This book provides instructions for operating the IBM 6150 and 6151 system units. Section 2 of the book describes the IBM RT PC Keyboard and IBM RT PC Mouse. Section 3 and 4 describe the displays and other devices that can be attached to the IBM RT PC system units. In addition, Sections 6-9 provide convenient location for operating instructions that come with printers, plotters, terminals, and the IBM 6157 Streaming Tape Drive.

For your convenience, each section can be located with tabs.

## Organization

This manual contains the following sections:

Section 1, "Operating the IBM RT PC System," describes the operation of the IBM 6150 and the 6151 system units. This section also explains the operation of diskette drives and fixed-disk drives.

Section 2, "Using the Keyboard and Mouse," discusses the operation of the IBM RT PC Keyboard and IBM RT PC Mouse.

Section 3, "Using the Displays," describes the displays available for the IBM RT PC System and the controls associated with each display.

Section 4, "Using Other Input Devices," describes some of the different input devices that can be used on the IBM RT PC System.

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<sup>2</sup> Trademark of International Business Machines Corporation



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Section 5, "Moving the System," discusses preparing the IBM 6150 and 6151 system units to be moved.

Section 6, "Printers," is provided for you to insert the printer guide to operations that is shipped with the printer.

Section 7, "Plotters," is provided for you to insert the plotter guide to operations that is shipped with the plotter.

Section 8, "Terminals," is provided for you to insert the terminal guide to operations that is shipped with the terminal.

Section 9, "IBM 6157 Streaming Tape Drive," is provided for you to insert the guide to operations that is shipped with the IBM 6157 Streaming Tape Drive.

The glossary describes terms used in the book.

You can use this book in two ways:

- Read and work through it from the first section to the last one.
- Use the Table of Contents and the Index to locate particular topics.

A Reader's Comment Form and Book Evaluation Form are provided at the back of this book. Use the Reader's Comment Form at any time to give IBM information that may improve the book. After you become familiar with the book, use the Book Evaluation Form to give IBM specific feedback about the book.

## **Related Publications**

- *IBM RT PC Options Installation* provides instructions for installing optional adapters in IBM 6151 and IBM 6150 and installing fixed-disk and diskette drives in IBM 6150. (Packaged with *IBM RT PC User Setup Guide*)
- *IBM RT PC User Setup Guide* provides instructions for setting up and connecting devices to the system units. This book also gives procedures

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for testing the setup. (*Packaged with IBM RT PC Options Installation*)

- *IBM RT PC Problem Determination Guide* provides instructions for running diagnostic routines to locate and identify hardware problems. A problem determination guide for software and two high-capacity (1.2MB) diskettes containing the IBM RT PC diagnostic routines are included.
- *IBM RT PC Installing and Customizing the AIX Operating System* provides step-by-step instructions for installing and customizing the AIX Operating System<sup>3</sup>, including how to add or delete devices from the system and how to define device characteristics. This book also explains how to create, delete, or change AIX and non-AIX minidisks.
- *IBM RT PC Usability Services Reference* supplements *IBM RT PC Usability Services Guide* by including information on using all of the Usability Services commands. (*Packaged with Usability Services Guide*)
- *IBM RT PC Using and Managing the AIX Operating System* describes using AIX Operating System commands, working with the file system, and developing shell procedures. This book also provides instructions for performing such system management tasks as adding and deleting user IDs, creating and mounting file systems, backing up the system, and repairing file system damage.
- *IBM RT PC Exploring Usability Services* is an online tutorial for first-time users of the Usability Services. This tutorial simulates the user interface and shows how to use the keyboard and the optional mouse, how to manipulate windows, and how to use files and directories.
- *IBM 6157 Streaming Tape Drive Setup and Operating Instructions* provides instructions for setting up and operating the IBM 6157 Streaming Tape Drive. This pamphlet also describes procedures for cleaning the recording head of the tape drive and handling tape cartridges.

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<sup>3</sup> Trademark of International Business Machines Corporation

## **Ordering Additional Copies of This Book**

To order additional copies of this publication (without program diskettes), use either of the following sources:

- To order from your IBM representative, use Order Number SV21-8021.
- To order from your IBM dealer, use Part Number 75X1119.

A binder and tabs are included with the order.



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## **Section 1. Operating the IBM RT PC System**

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## About This Section

This section describes the RT PC system units and includes information on diskette drives, fixed-disk drives, and the operator panel.

Read this section to become familiar with:

- Handling diskettes
- Ordering keys and keylocks
- Powering on the system
- Powering off the system.

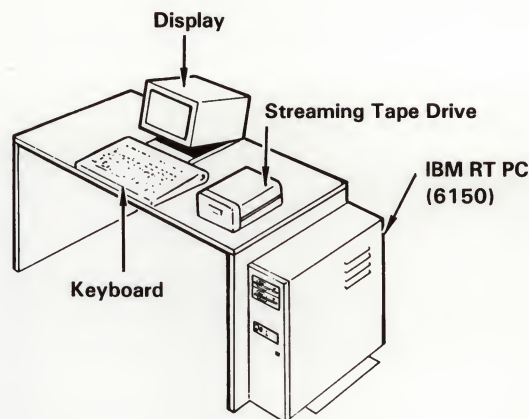
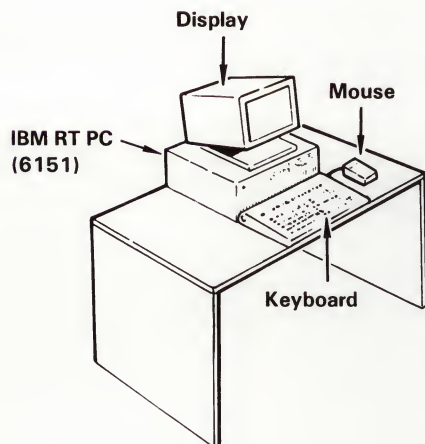
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## Introducing the IBM 6150 and IBM 6151

The RT PC family includes the IBM 6150 and the IBM 6151 system units. The IBM 6150s are floor-standing system units and the IBM 6151s are table-top system units.

An IBM RT PC system consists of the system unit, a keyboard, and a display. A wide range of options are available, such as a mouse, IBM 6157 Streaming Tape Drive, printers, data communications, terminals, and color plotters.

The operation of the system unit, diskette drives, fixed-disk drives, and IBM 6157 Streaming Tape Drive is the same for IBM 6150 and IBM 6151. The IBM 6150 provides larger expansion capability than the IBM 6151.



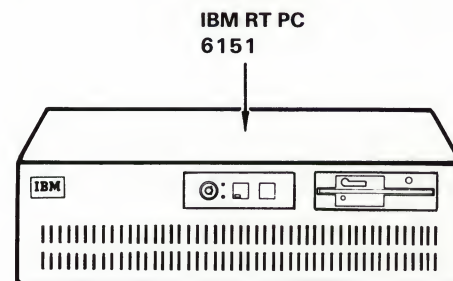
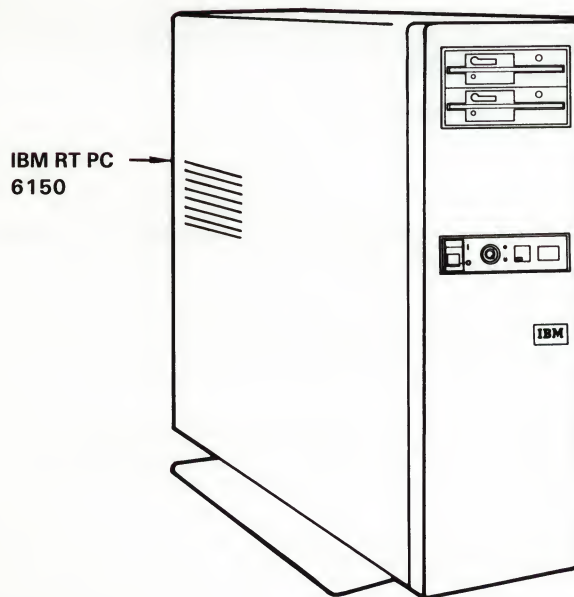
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## System Unit

The main component of the RT PC system is the system unit. The system unit contains hardware components such as memory or option cards and fixed-disk and diskette drives. These hardware components support the AIX Operating System. The AIX Operating System controls operations for the system and processes programs. Various program packages are available to help you meet a variety of application needs.

The AIX Operating System stores data on and retrieves data from the fixed-disk or diskettes using the system unit hardware.

See the publications for the AIX Operating System for additional information about installing and using the AIX Operating System.





## Declaration of Noise Emission Values for IBM 6150

The following chart describes the machine noise levels for IBM 6150.  
Stated noise levels are subject to change.

Product	
Type	Description
6150	System Console

$L_{wAd}$		$L_{pAm}$		$\langle L_{pA} \rangle_m$		Impulsive Noise	Prominent Discrete Tones
Operating (bels)	Idle (bels)	Operating (dB)	Idle (dB)	Operating (dB)	Idle (dB)	{ $\Delta LI$ }	
6.1	6.1	N/A	N/A	46.0	46.0	No	Yes

### Notes:

1.  $L_{wAd}$  is the declared sound power emission level for a production series of machines.
2.  $L_{pAm}$  is the mean value of the sound pressure emission levels at the operator position (if any) for a production series of machines.
3.  $\langle L_{pA} \rangle_m$  is the mean value of the space-averaged sound pressure emission levels at the one-meter positions for a production series of machines.
4. N/A = Not Applicable (No operator position).

All measurements are made in accordance with ISO DIS 7779, and reported in conformance with ISO DIS 7574/4.

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## Declaration of Noise Emission Values for IBM 6151

The following chart describes the machine noise levels for IBM 6151.  
Stated noise levels are subject to change.

Product	
Type	Description
6151	System Console

$L_{wAd}$		$L_{pAm}$		$\langle L_{pA} \rangle_m$		Impulsive Noise	Prominent Discrete Tones
Operating (bels)	Idle (bels)	Operating (dB)	Idle (dB)	Operating (dB)	Idle (dB)	{ $\Delta LI$ }	
6.0	6.0	51.0	51.0	46.0	46.0	No	Yes

### Notes:

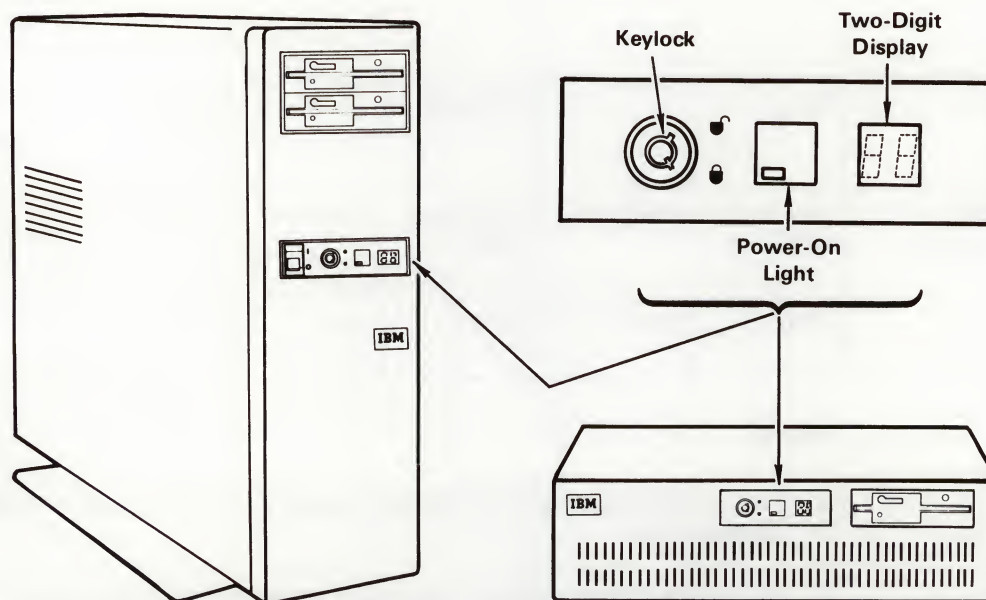
1.  $L_{wAd}$  is the declared sound power emission level for a production series of machines.
2.  $L_{pAm}$  is the mean value of the sound pressure emission levels at the operator position for a production series of machines.
3.  $\langle L_{pA} \rangle_m$  is the mean value of the space-averaged sound pressure emission levels at the one-meter positions for a production series of machines.

All measurements are made in accordance with ISO DIS 7779, and reported in conformance with ISO DIS 7574/4.

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## Operator Panel

The operator panel is located on the front of the system unit. The panel consists of the keylock, power-on light, and two-digit display.





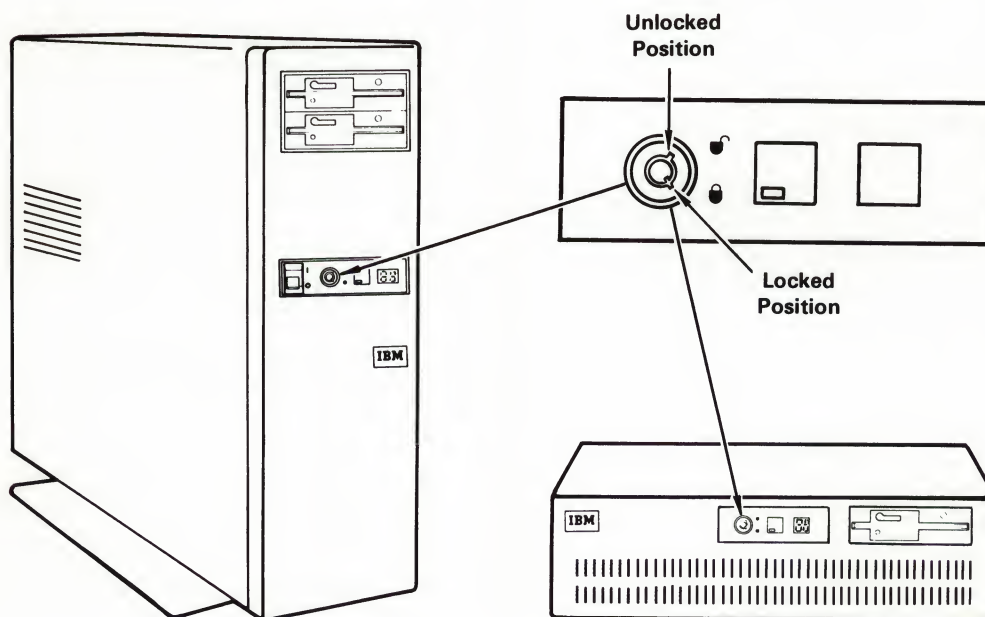
## Keylock

The keylock helps prevent unauthorized use of the system. The keylock has an unlocked position and a locked position.

Locking the keylock deactivates the keyboard and locks the covers on. When you turn on the power switch while the keylock is in the locked position, the operation of the system unit stops and the two-digit display displays 99. You cannot use the keyboard or perform any further operations until the keylock is turned to the unlocked position.

When you unlock the keylock, the power-on procedure and program loading continues. When a program is loaded and operating correctly, you can lock the keylock at any time. Remote terminals will continue to operate.

You can lock the system whether the power is on or off. Turn the key clockwise to lock the system or counterclockwise to unlock it. You can remove the key from either position.

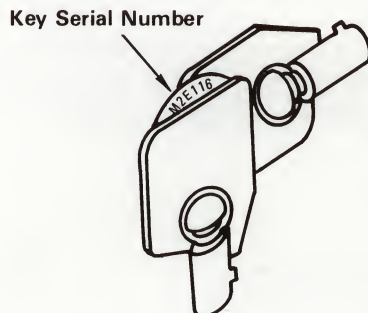


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## Ordering a Key and Keylock

Two keys were shipped with the system unit. If you have not separated the keys, rotate the top key and dislodge the keys. Keep the serial number tag in a safe place.

To obtain ordering and cost information for replacement keys or keylocks, write to the address below. When ordering replacement keylocks include the keylock part number 6299485. When ordering replacement keys include the key serial number located on the serial number tag.



IBM Parts Order Center  
P. O. Box 505  
Greencastle, Indiana 46135

**Remember, you are responsible for the security of the system.**

---

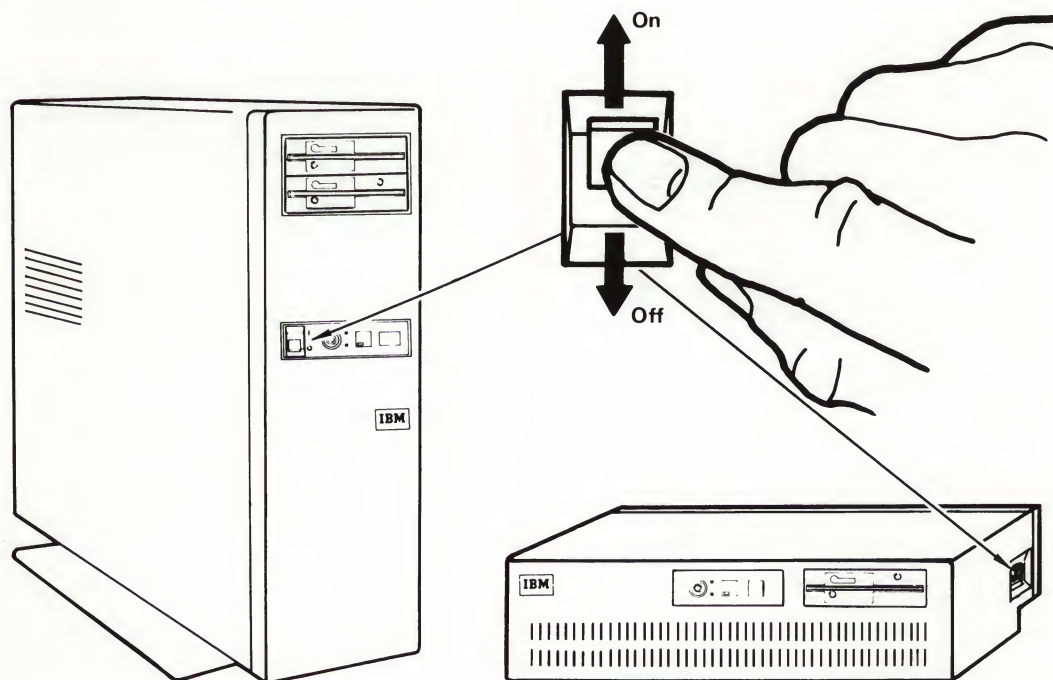
## Power On and Power Off

The power switch is used to turn the system on and off. After you turn the power switch on, the system performs an internal Power On Self Test (POST). The green power-on light is lit when the power is on.

Ensure that the power cord located at the back of the system unit is plugged in the system unit and also into the electrical wall outlet.

See your application documentation for information on the system login procedure.

**Warning:** When using the AIX Operating System, enter the **shutdown** command before you turn the power off. Failure to do so may result in the loss of data. If you turn the power off before shutting down the AIX Operating System or need information on the correct shutdown procedure, see *Using and Managing the AIX Operating System*.





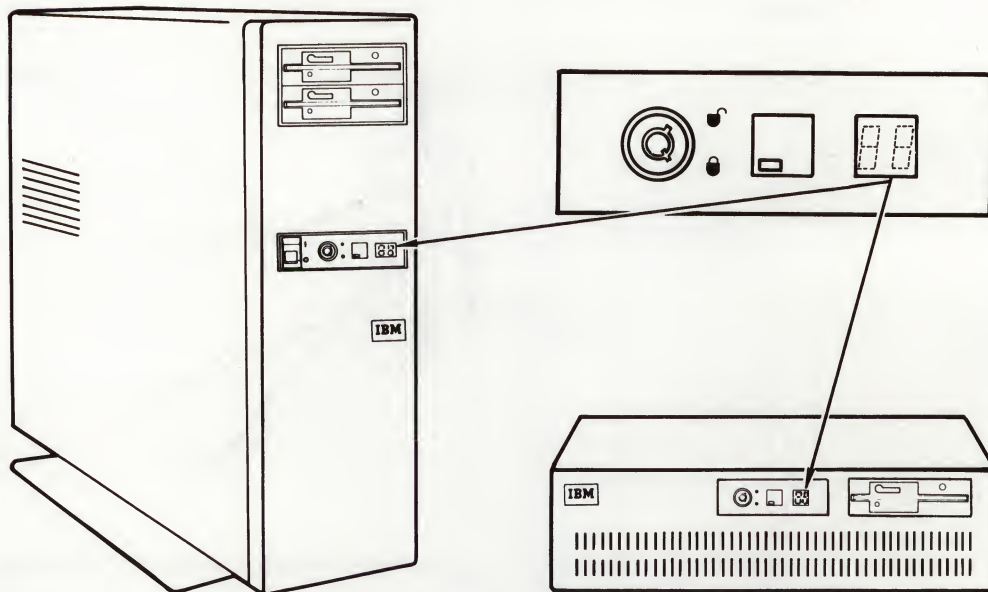
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## Two-Digit Display

The two-digit display on the operator panel of the system unit displays numbers that indicate the progress of the Power On Self Test (POST).

Several numbers appear on the two-digit display as the POST progresses. If an error is detected that requires your attention, the system unit stops and a number appears in the two-digit display that identifies the error. The two-digit display is blank when the POST completes with no errors detected.

See the *Problem Determination Guide* for an explanation of the displayed numbers and instructions to correct the problem.



---

## Diskettes

Diskettes store data as a series of magnetic fields on a disk enclosed in a protective plastic jacket. The plastic jacket protects the magnetic disk from dirt and damage. A storage envelope provides additional protection.

**Warning:** You must use the correct types of diskettes to assure the successful operation of the IBM RT PC System. If you use the incorrect diskette, the data on the diskette is destroyed. See “About Diskette and Drive Compatibility” on page 1-17 for additional information on selecting a diskette.

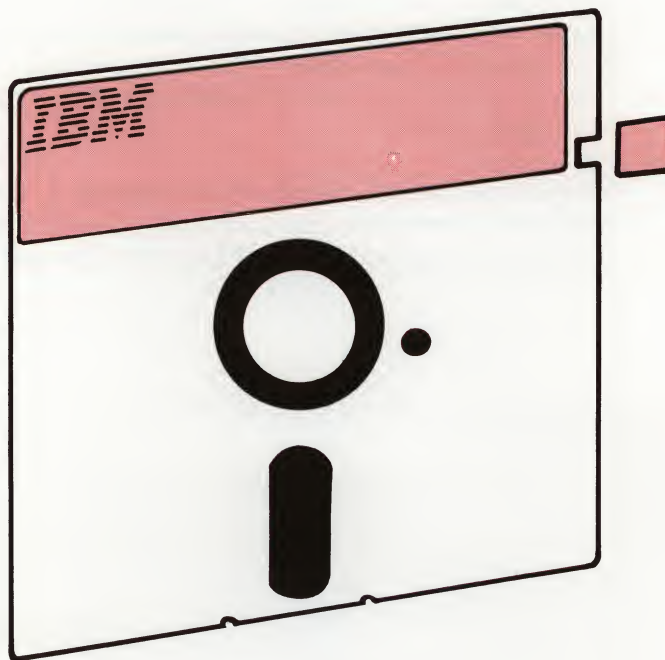
You should format diskettes to be used by the IBM RT PC System. The way your diskettes are formatted depends upon the program and the type of drive you are using. Refer to the documentation for your program and *Using and Managing the AIX Operating System* for information on formatting diskettes.

You can use diskettes, tapes, or fixed disks to store and back up files. For additional information see *Using and Managing the AIX Operating System* or *Usability Services Reference* (if Usability Services is installed on the system).

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## Write-Protect

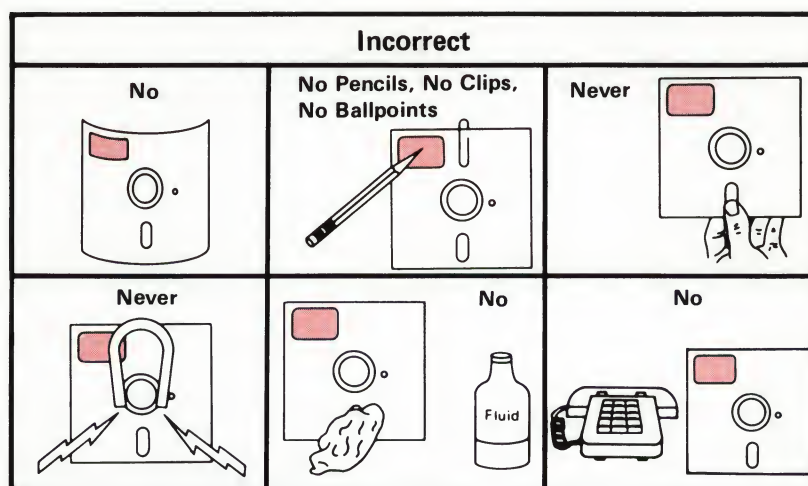
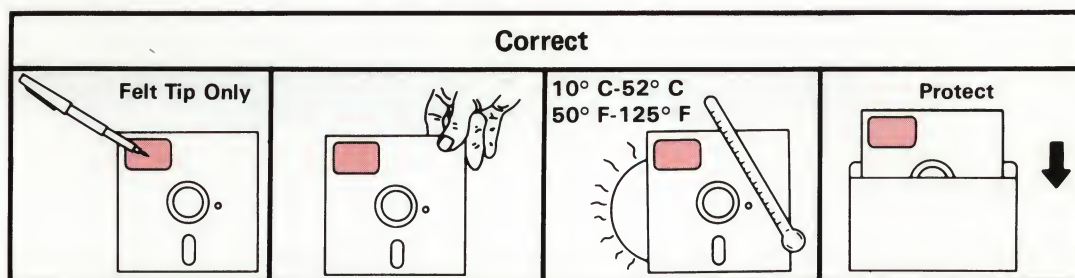
When a diskette is write-protected, no information can be written on the diskette. To write-protect a diskette, cover the notch on the side of the diskette with a write-protect tab. Using write-protect tabs protects data on a diskette from being written on or erased. If you want to write information on a diskette, remove the write-protect tab. Some diskettes do not have a notch. These diskettes are already write-protected and information cannot be written on the diskette by the computer.





## Diskette Care

The figures below show correct and incorrect ways of handling the diskettes. Correct handling greatly reduces the possibility of damaging the diskettes.

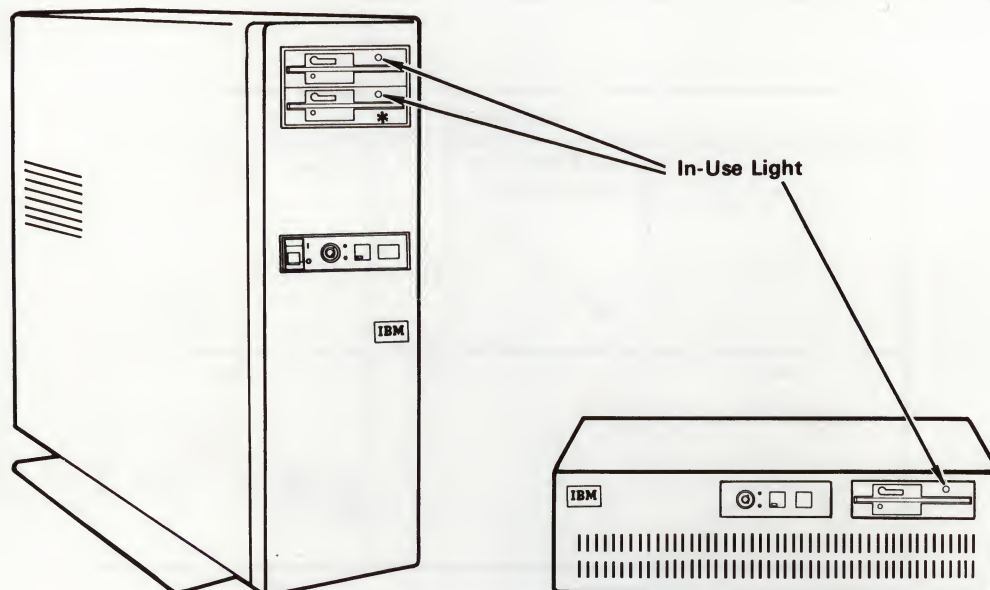


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## Diskette Drives

Diskette drives read and write data on diskettes. The Personal Computer AT High Capacity Diskette Drive in the IBM RT PC System stores approximately 1.2 M-bytes of data on a 5-1/4 inch diskette. The Personal Computer AT Dual-Sided Diskette Drive is an option for the IBM 6150. The Personal Computer AT Dual-Sided Diskette Drive stores up to 360 K-bytes of data on a 5-1/4 inch diskette and is identified by a large asterisk below the in-use light.

Program or data diskettes are inserted into diskette drives. Diskette drives enable the system to read or write data on diskettes.



---

## About Diskette and Drive Compatibility

The following chart shows the compatibility of the IBM RT PC System drives with different types of formatted diskettes.

Single-Sided Diskette (160/180K)	Dual-Sided Diskette (320/360K) 1	High-Capacity Diskette (1.2M)
Read or Write	Read or Write	Do Not Use 2
Read or Write 2	Read or Write 3	Read or Write

1 - The Personal Computer AT Dual-Sided Diskette Drive is an option for the IBM 6150 system unit.

2 - Do not use in a Personal Computer AT Dual-Sided Diskette Drive

3 - **Warning:** If you write on a single-sided or dual-sided diskette with the Personal Computer AT High Capacity Diskette Drive, reformat the diskette before using it in a Personal Computer AT Dual-Sided Diskette Drive. Save the data on your diskette before you reformat it. Reformatting the diskette causes the loss of data. The data written by a Personal Computer AT High Capacity Diskette Drive on a dual-sided diskette can only be read by a Personal Computer AT High Capacity Diskette Drive. To guard against accidental writing on these diskettes, you can place a write-protect tab on the diskette before you use it. Refer to "Write-Protect" on page 1-14.



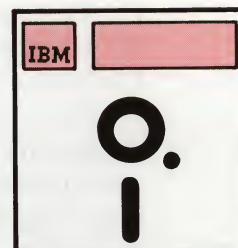
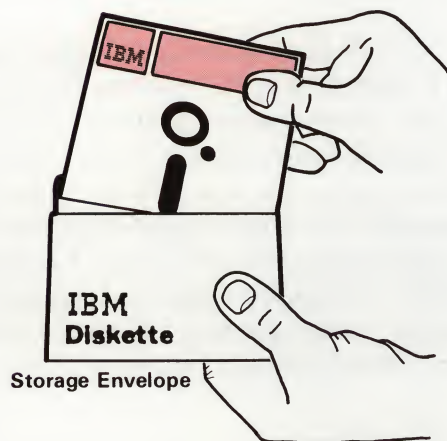
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## Operating the Diskette Drive

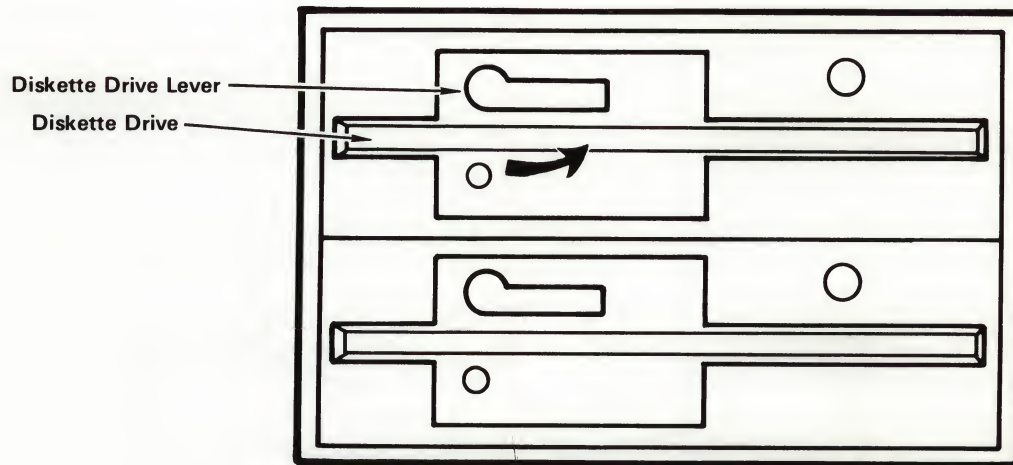
The system has at least one diskette drive. If the system has two diskette drives installed, the first diskette drive is referred to as diskette drive position A and the second diskette drive is referred to as diskette drive position B. When you have two diskette drives, you can insert a diskette in diskette drive position A and a diskette in diskette drive position B.

To insert a diskette into the drive:

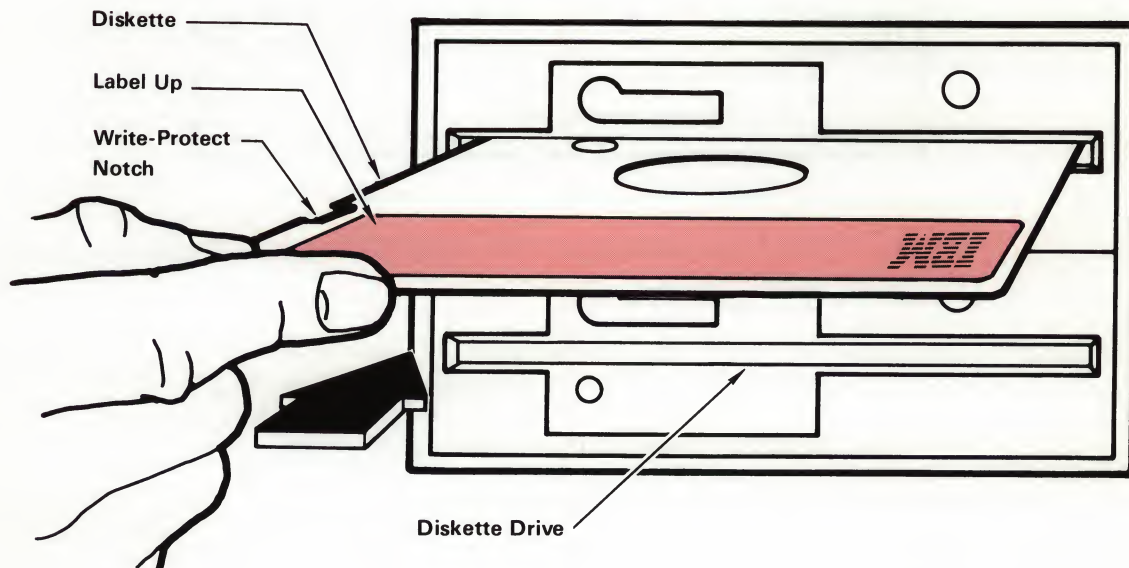
1. Remove the diskette from the storage envelope.



2. Rotate the drive lever on the diskette drive counterclockwise to the position shown below.

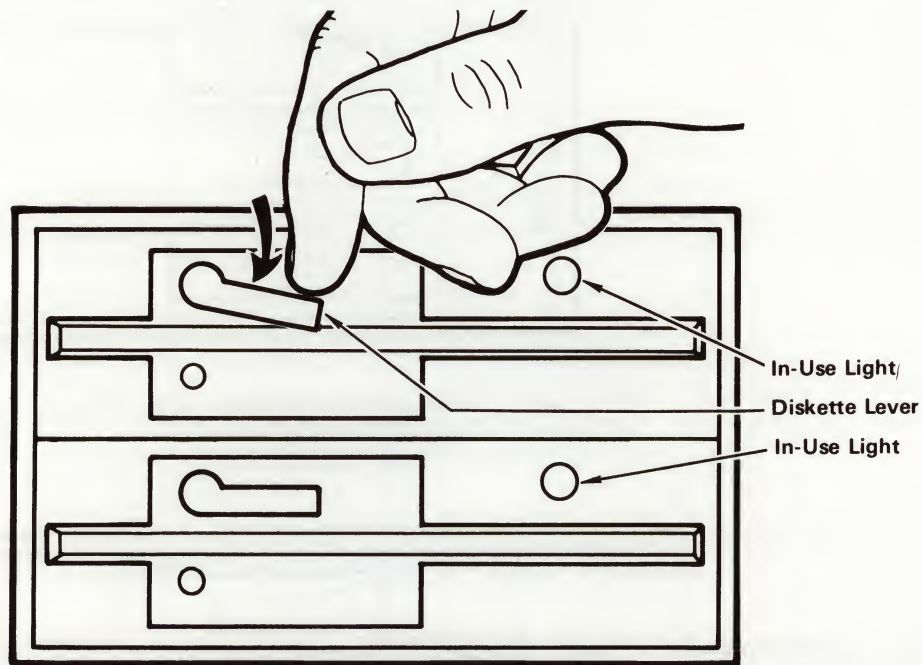


3. Insert the diskette into the diskette drive with the label facing up and the write-protect notch to the left.



- 
4. Close the diskette drive by rotating the drive lever clockwise.

**Warning:** Do not open the diskette drive or remove the diskette when the in-use light is on. Data on the diskette may be destroyed.



When the in-use light is on, it indicates that the system unit is using the diskette drive.

5. To remove the diskette from the diskette drive, rotate the diskette drive lever counterclockwise and pull the diskette out.
6. Insert the diskette into the storage envelope.



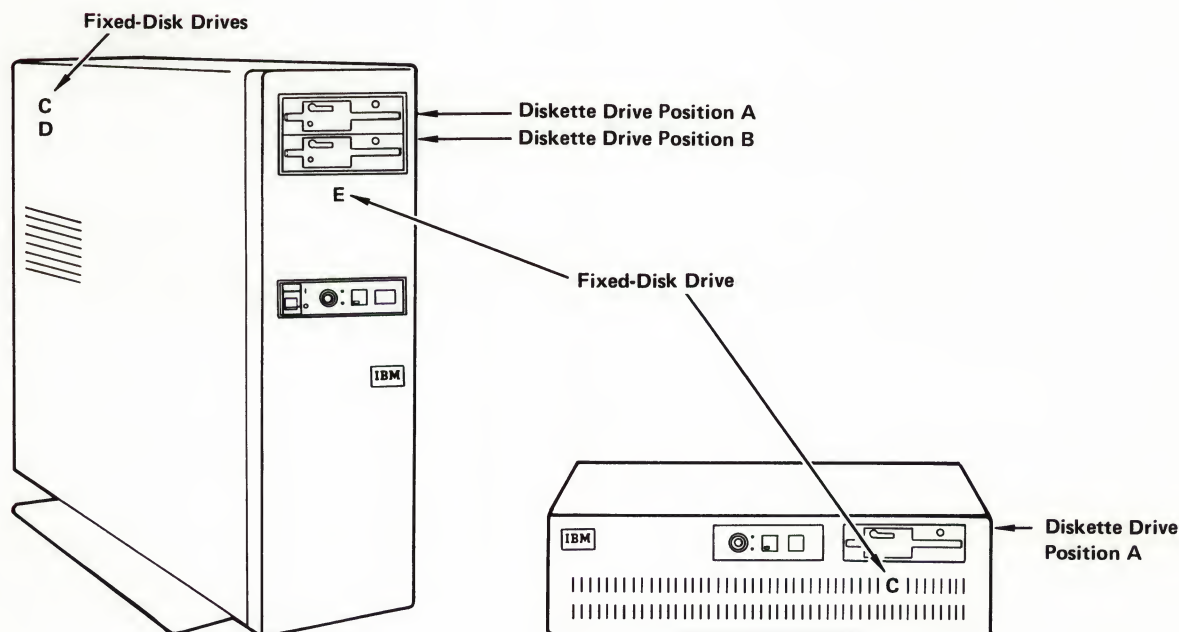
## Fixed-Disk Drives

You can store and retrieve data using the fixed-disk drive with the AIX Operating System. A fixed disk is sometimes called a hard file. It is called fixed because the disk is internal to the system, rather than being inserted into a drive.

The IBM 6150 can have one, two, or three fixed-disk drives. The IBM 6151 has one fixed-disk drive.

The 40MB Fixed-Disk Drive and 70MB Fixed-Disk Drive can be installed on either the IBM 6150 or the IBM 6151.

Data can become unusable because of a fixed-disk drive failure. You are responsible for the backup of the data stored on the fixed-disk. See *Using and Managing the AIX Operating System* for information on using diskettes or the IBM 6157 Streaming Tape Drive to back up files.





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## **Section 2. Using the Keyboard and Mouse**



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## About This Section

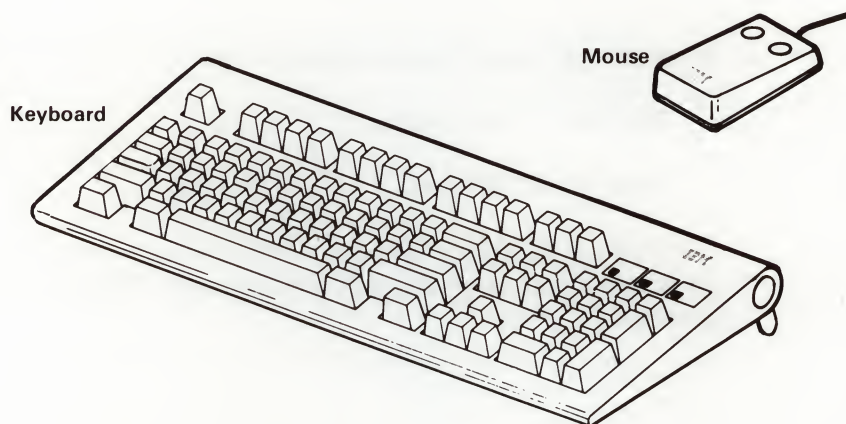
Read this section to become familiar with how to operate the:

- IBM RT PC Keyboard
- IBM RT PC Mouse

This section describes the parts of the keyboard, how to use multiple key commands, and how to adjust the keyboard. Mouse care and handling are discussed.

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## Introducing the Keyboard and Mouse



The IBM RT PC Keyboard consists of various keys that allow you to enter data, to control the cursor location, and to control the dialogue between you and the system.

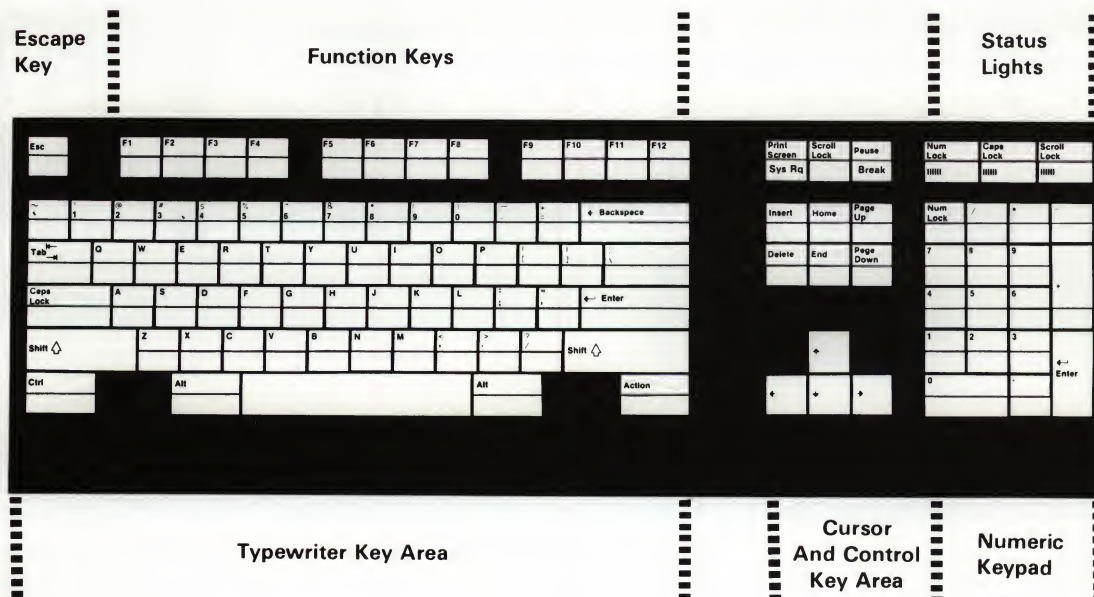
The IBM RT PC Mouse is an optional feature used to control the cursor location.



# Keyboard

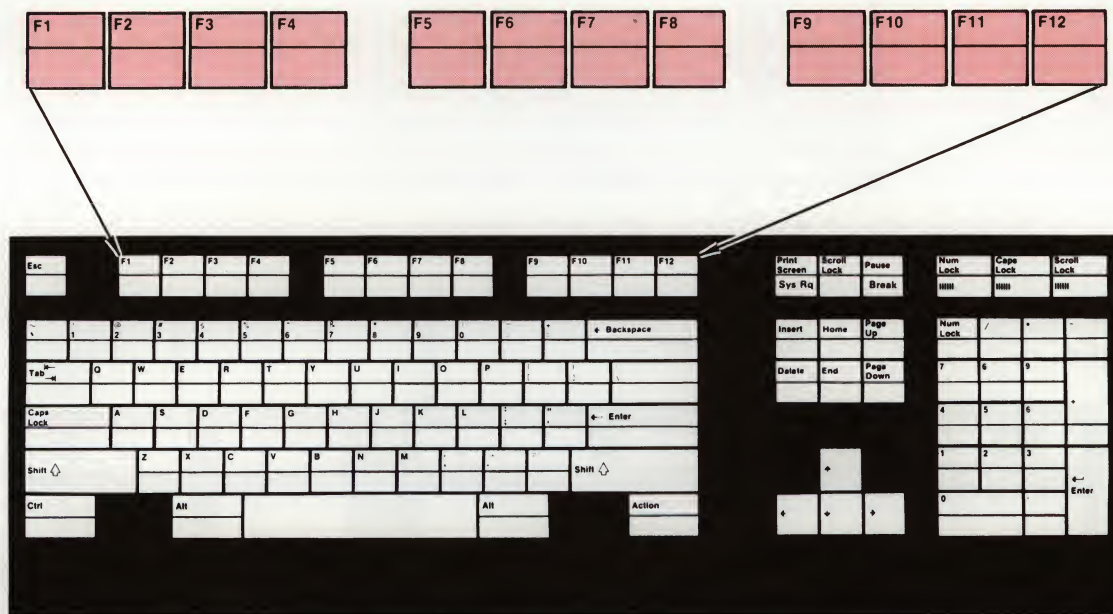
The keyboard is divided into four sections: the function keys, the typewriter key area, the cursor and control key area, and the numeric keypad. The keyboard also has three status lights that show the status of the **Numeric (Num) Lock**, **Capital (Caps) Lock**, and the **Scroll Lock** keys. The **Escape (Esc)** key is defined by the application you are using.

The various programs you use on the AIX Operating System control most key functions. The following pages describe the four categories of keys. While some of the key functions are controlled by the application program, others have functions that remain constant, regardless of the application program being run. For other key functions and descriptions, you must refer to the user's guide for the particular program you are using.



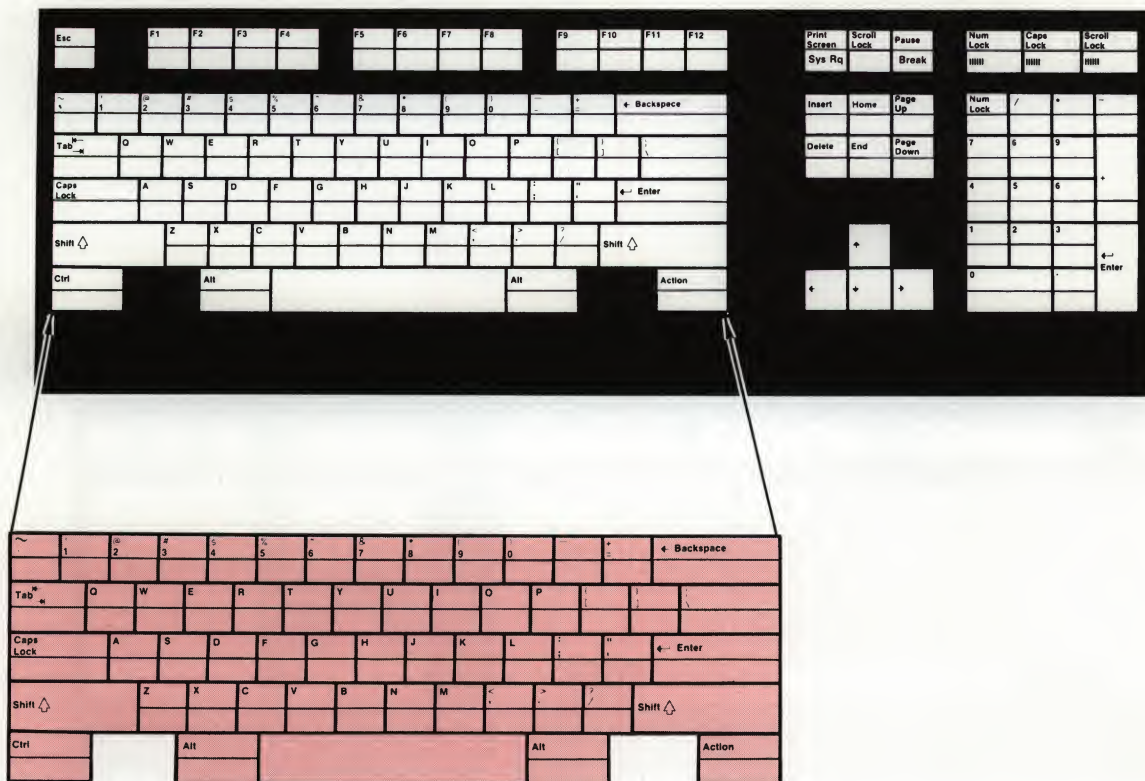
## Function Keys

The twelve function keys are multipurpose keys and are always under program control. Their functions are defined in the user's guide for each application.



## Typewriter Key Area

The keys in the typewriter key area are similar to those on a standard typewriter.





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## Enter Key

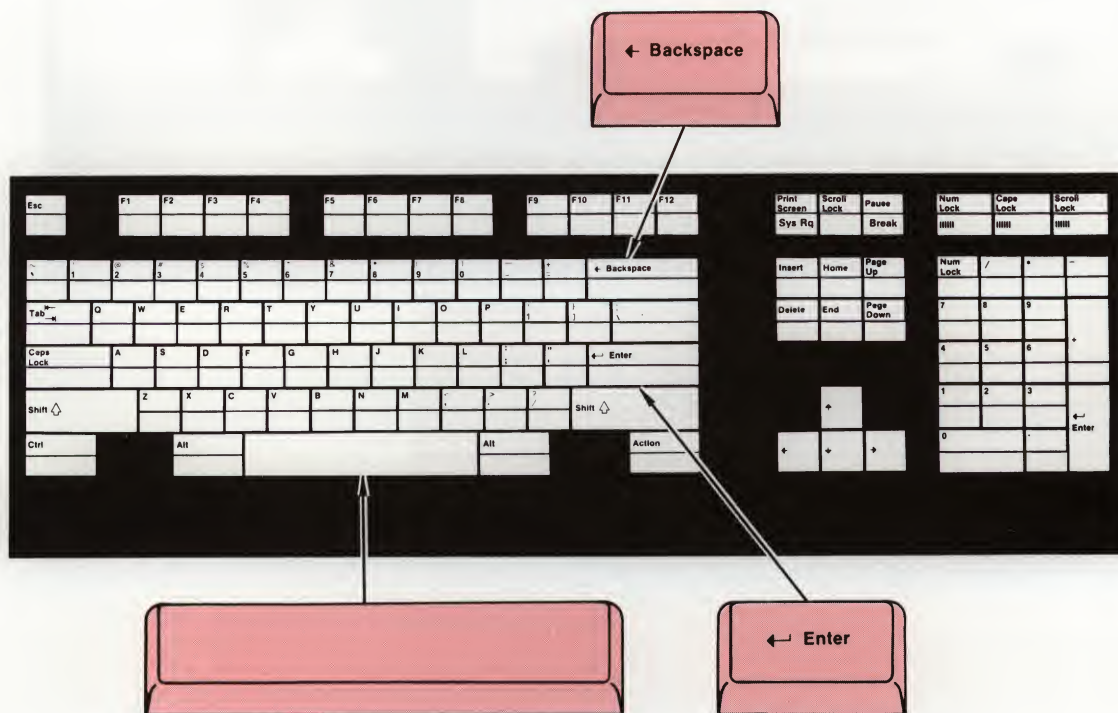
The use of the ↵ **Enter** key is defined by the application you are using.

## Backspace Key

The ← **Backspace** key erases characters. Each time you press the **Backspace** key, it moves the cursor one position to the left and erases the character in that position.

## Spacebar Key

The **Spacebar** key, when pressed, places a blank character on the display screen and advances one space.

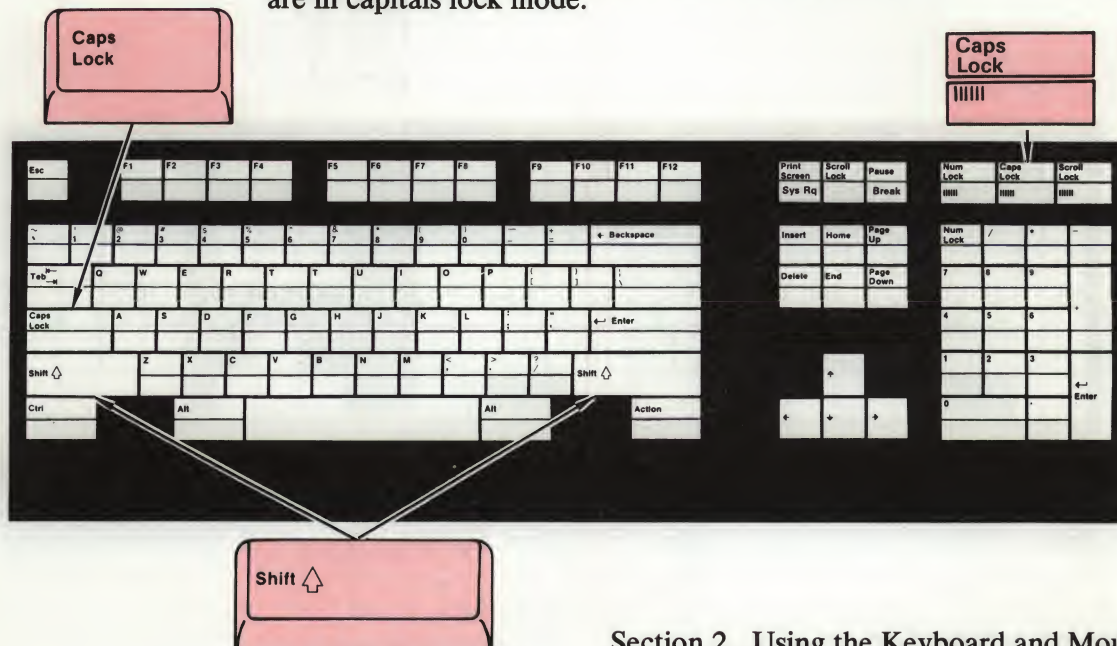


## Shift Keys

There are two **Shift** keys on the keyboard. Pressing either of the **Shift** keys switches the letter keys from lowercase to uppercase and the numeric keys in the typewriter key area from numbers to symbols. Pressing the **Shift** key switches the numeric and period keys in the numeric keypad from line drawing characters to numbers and a period. The **Shift** key temporarily reverses the state of the capitals lock mode and the numeric lock mode. Pressing the **Shift** key in capitals lock mode switches the letter keys from uppercase to lowercase. Pressing the **Shift** key in numeric lock mode switches the numeric and period keys in the numeric keypad to line drawing characters.

## Capitals (Caps) Lock Key

The Capitals (Caps) Lock light comes on when you press the **Caps Lock** key and the keyboard is now in capitals lock mode. The light lets you know that the A through Z keys are locked in uppercase. The light goes off when you press the **Caps Lock** key again, and your program is no longer in capitals lock mode. The capitals lock mode cannot be used to type the symbols that appear on the tops of other keys. Pressing either of the **Shift** keys temporarily switches the letter keys from uppercase to lowercase when you are in capitals lock mode.





## Control (Ctrl) Key

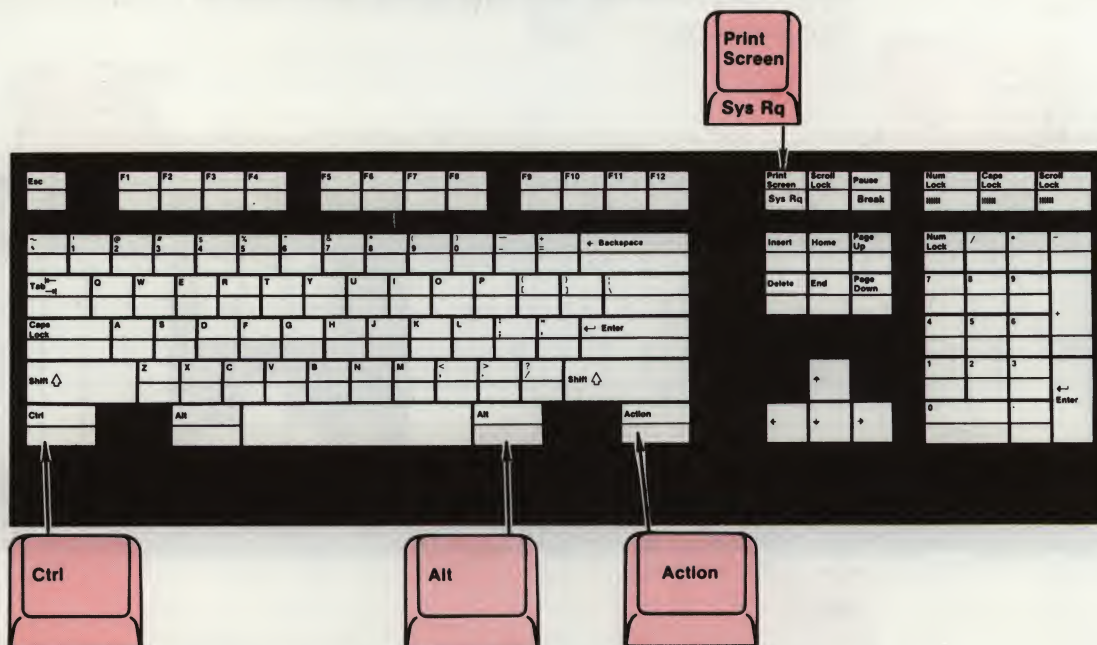
The **Control (Ctrl)** key is always used with another key to perform a command or function. Press and hold the **Ctrl** key, then press the selected key. The operation performed for a given control combination is determined by the application program being run.

## Alt Keys

There are two Alt keys on the keyboard. The **Alt** keys are used to perform the function engraved on the front face of the keys. Press and hold one of the **Alt** keys. Then press the selected key with the front face engraving. An example of a key with a front face engraving is shown below. The **Alt** keys are also used, like the **Ctrl** key, in multiple key sequences to perform control functions.

## Action Key

The **Action** key is used to inform application programs that you are ready to have data (on the screen) processed. The operation performed is determined by the application program you are using.

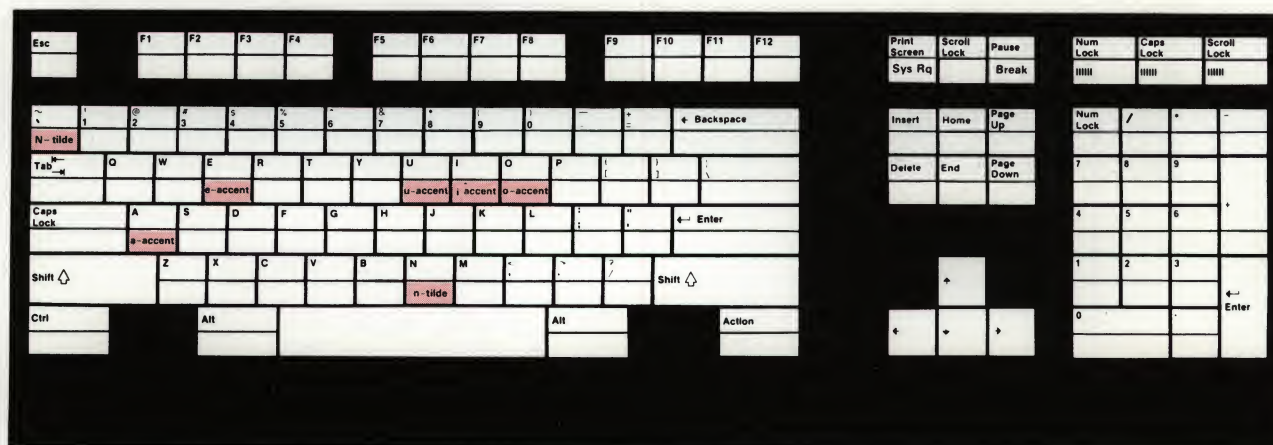




**Note:** When entering data into your computer, the zero (0) key and the letter (O) key are not interchangeable. The number one (1) key and the lowercase letter (L) key are also not interchangeable.

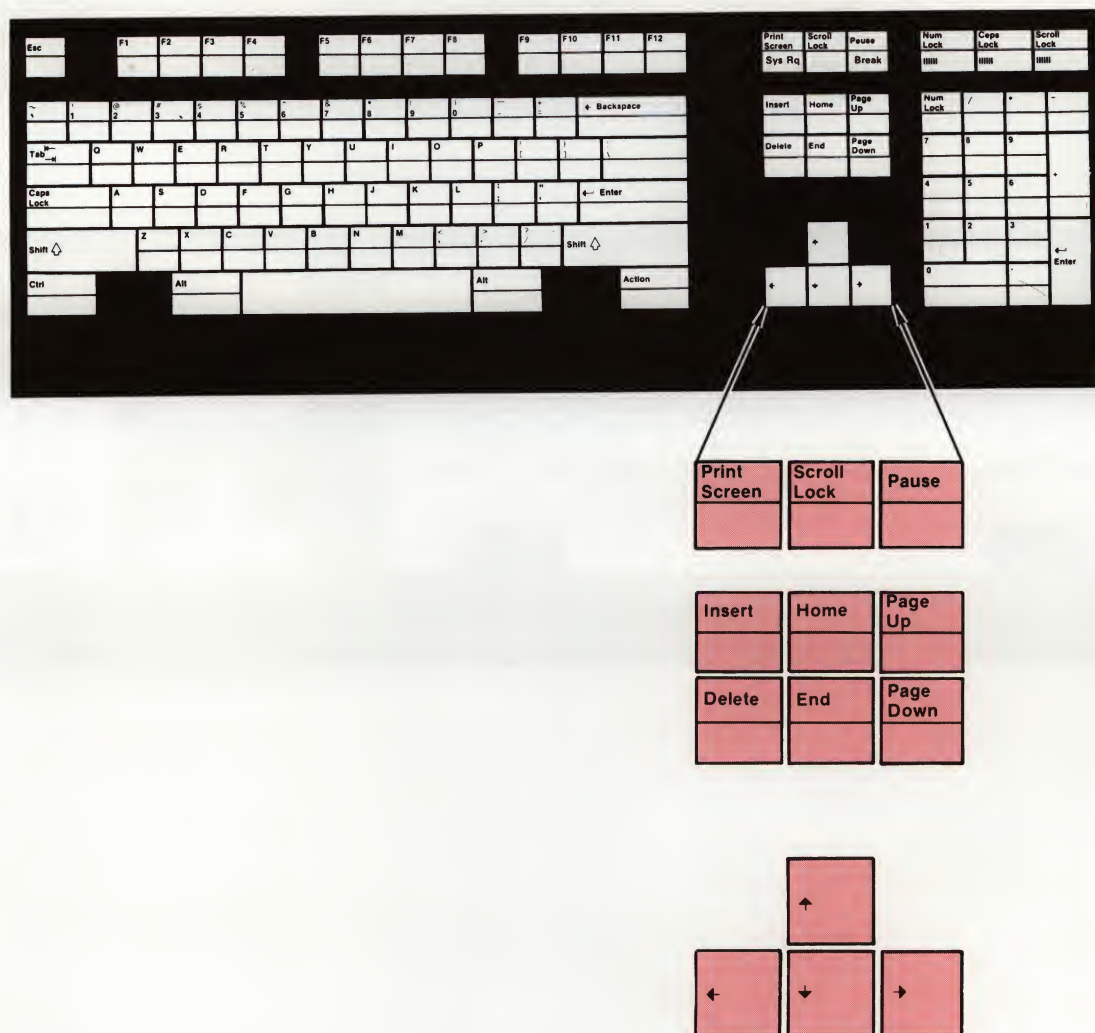
## Spanish Characters

Spanish characters accented in the Spanish language are located on some of the alphabetic keys. These characters are not engraved on the keyboard. You can use the Spanish punctuation keys by pressing the Alt key and then the selected key. The following keys illustrate which Spanish punctuation characters are located on the typewriter key area.



## Cursor and Control Keys

The cursor is the blinking text marker that shows where you are on the screen. The Cursor control keys allow you to move the cursor around on the screen. The following cursor control key functions describe how the cursor is moved when you are working in text.

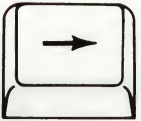




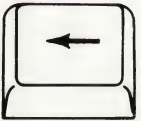
The **Cursor Up** key moves the cursor one line up.



The **Cursor Down** key moves the cursor one line down.



The **Cursor Right** key moves the cursor one character position to the right.



The **Cursor Left** key moves the cursor one character position to the left.

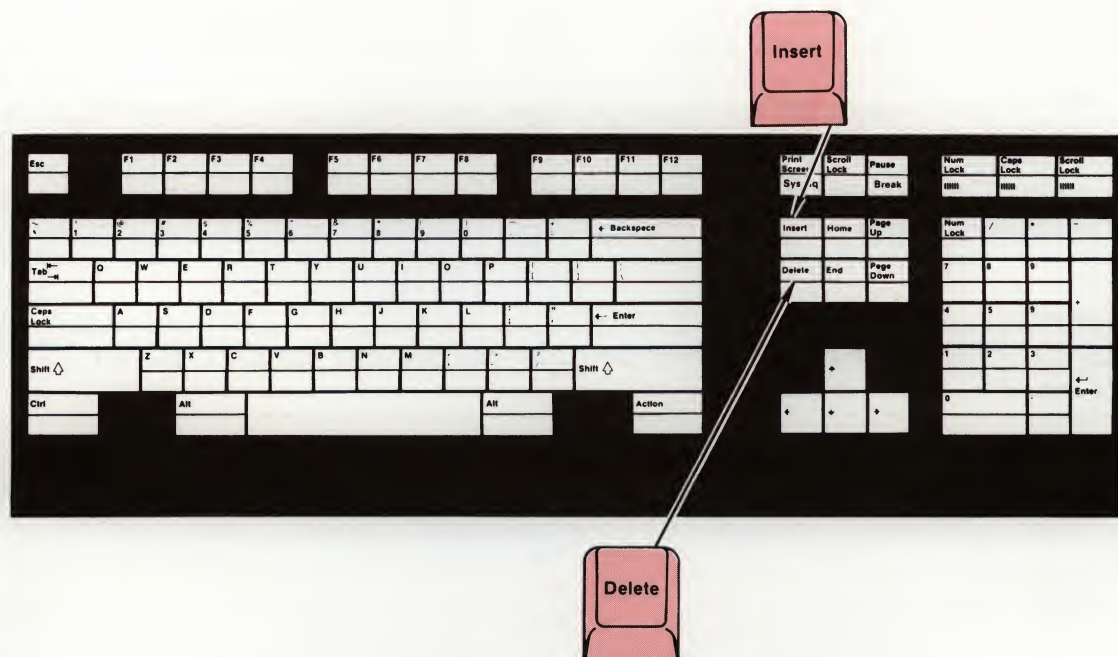


## Insert Key

The **Insert** key is used to insert data in a line and its use is controlled by the application program you are using. When a character is inserted, all data to the right of the cursor moves right one position. Press the **Insert** key once and the cursor changes shape to indicate the insert mode. Press the **Insert** key again and the application program is no longer in insert mode.

## Delete Key

The **Delete** key erases the character where the cursor is positioned. When a character is deleted, all data to the right of the cursor moves left one position.

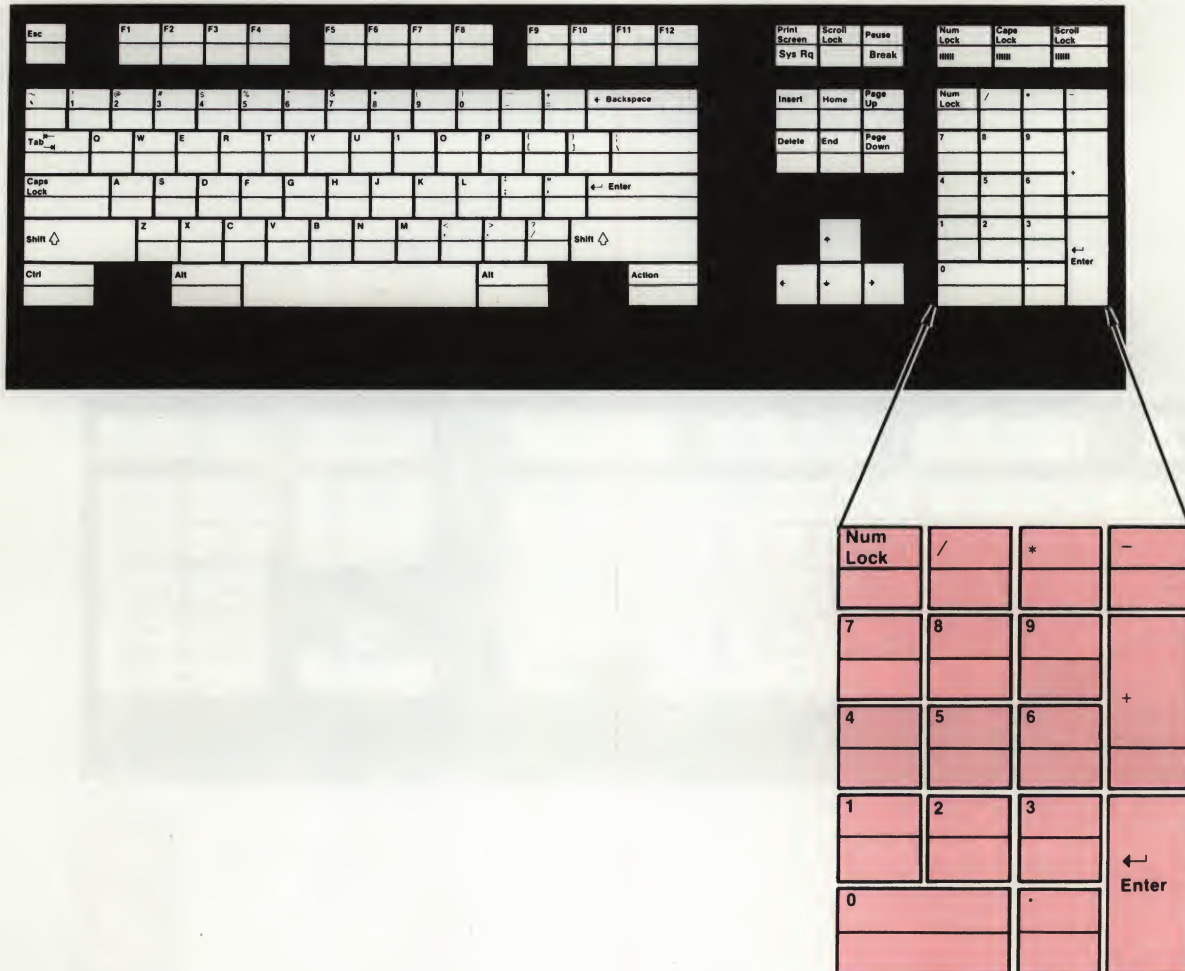


**Note:** The use of the **Scroll Lock**, **Pause**, **Home**, **Page Up**, **End**, and **Page Down** keys is defined by the application you are using.



## Numeric Keypad

The numeric keypad is arranged like a calculator to save time when typing many numbers. When the system is powered on, keys 0 through 9 are in graphics mode and the numeric lock light is off.

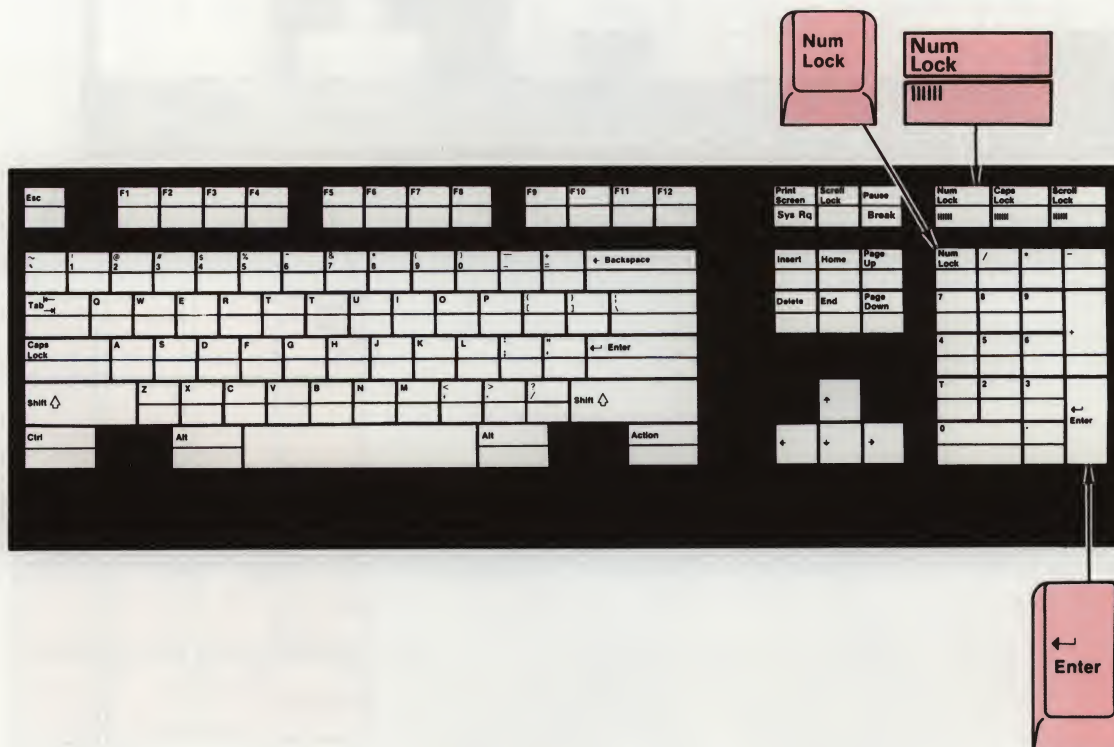


## Num Lock Key

When you press the **Num Lock** key, numeric lock mode and the numeric lock light are turned off if they were already on, or are turned on if they were previously off.

## Enter Key

The use of the ← **Enter** key is defined by the application you are using.



## Line Drawing Characters

Line drawing characters are located on the numeric and period keys. You can use the characters to draw boxes for graphic charts or drawings. These characters are not engraved on the numeric keypad. You can use these characters while the numeric keypad is in an unshifted state. The keyboard is in an unshifted state when the numeric lock mode is off and the **Shift** key is not being held down. The following illustration shows which unengraved characters are located on the numeric and period keys for line drawing.

Num Lock	/	*	-
7	8	9	+
┐	┌	└	
4	5	6	← Enter
└	+	┐	
1	2	3	← Enter
└	┐	└	
0	.		← Enter
	-		



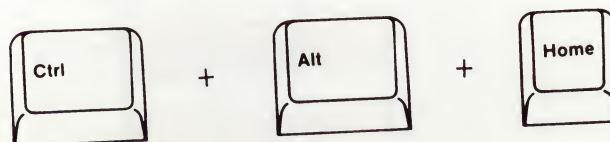
## Multiple Key Commands

The following commands are examples of multiple key AIX Operating System sequences that perform control functions. You can use these commands when the AIX Operating System is not operating correctly and all efforts at recovery have failed.

### Reloading the AIX Operating System

**Warning:** The following control function will delete the data and programs in memory. Shut down the AIX Operating System before you perform this control function. If the AIX Operating System cannot be shut down, a file system recovery operation may be required.

Press and hold the **Ctrl** and the left **Alt** keys. Then, press the **Home** key to IPL the system and reload the AIX Operating System. The operation of the Virtual Resource Manager (VRM) is not affected.





## IPLing the Coprocessor

Press and hold the **Ctrl** and the left **Alt** keys. Then, press the **Delete** key to IPL the coprocessor.



## Reloading the AIX Operating System and VRM

**Warning:** The following control function will delete the data and programs in memory. Shut down the AIX Operating System before you perform this function. If the AIX Operating System cannot be shut down, a file system recovery operation may be required.

Press and hold the **Ctrl** and the left **Alt** keys. Then, press the **Pause** key to generate a system IPL that reloads the AIX Operating System and VRM.



## Reloading the AIX Operating System and VRM After Power-On Self Test (Simulated Hard IPL)

**Warning:** The following control function will delete the data and programs in memory. Shut down the AIX Operating System before you perform this function. If the AIX Operating System cannot be shut down, a file system recovery operation may be required.

Press and hold the **Ctrl** and the **Alt** keys. Then, press the **numpad 6** key to generate a system IPL that reloads the AIX Operating System and VRM.

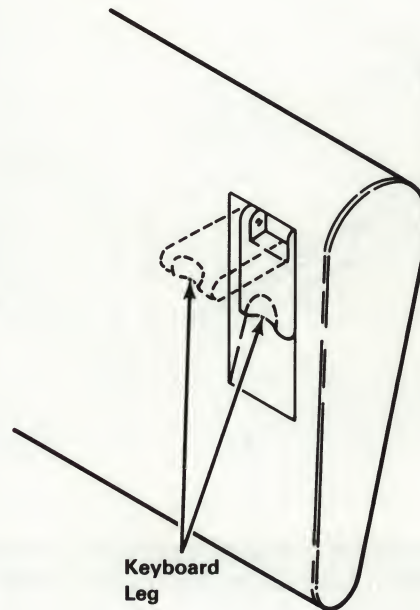


## Keyboard Height Adjustment

You can adjust the keyboard to the tilt or level position for typing comfort.

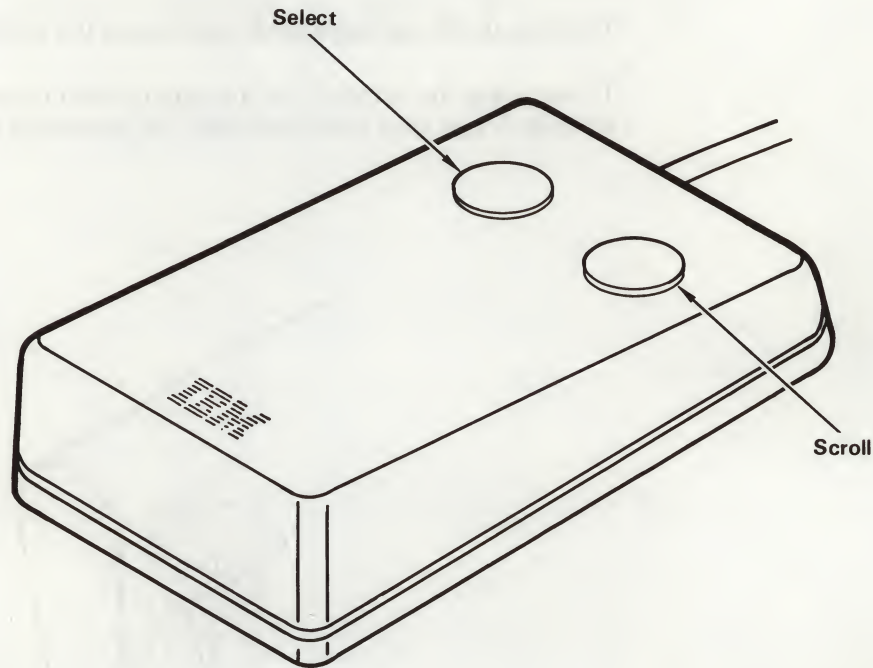
To slope or tilt the keyboard, pull out on the keyboard legs.

To decrease the slope of the keyboard, push in on the rear side of the keyboard legs until they snap into the bottom of the keyboard case.





## Mouse



The mouse is a hand-operated locator device. You can use the mouse to position the cursor, select items from a menu, and to enter data for graphic applications. The mouse operates on any flat surface, such as a desk top.

Moving the mouse around a flat surface moves the cursor on the display screen. This movement positions the cursor.

With the two buttons located on top of the mouse, you can select options and scroll the contents of the screen. Use the select button located on the left, to select a particular item on the screen. Use the scroll button located on the right, to scroll the contents of the screen.

---

## Mouse Care

The operating surface for the mouse should be smooth, clean, and flat. For example, you can operate the mouse on the following surfaces:

- Finished wood
- Glass
- Enamel
- Plastic
- Paper
- Metal
- Formica.

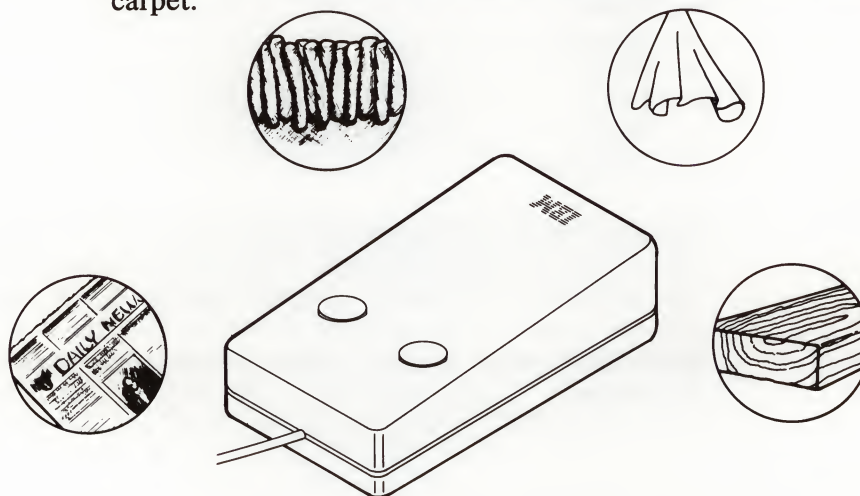
Rough surfaces collect contaminants that can be transferred to the interior of the mouse by the roller ball. The surface you use should be free of spills, dirt, dust, lint, wax, eraser dust, and other foreign matter. Rough surfaces can also cause the felt pads located on the bottom of the mouse to prematurely wear. A deeply pitted surface could cause erratic operation of the mouse.

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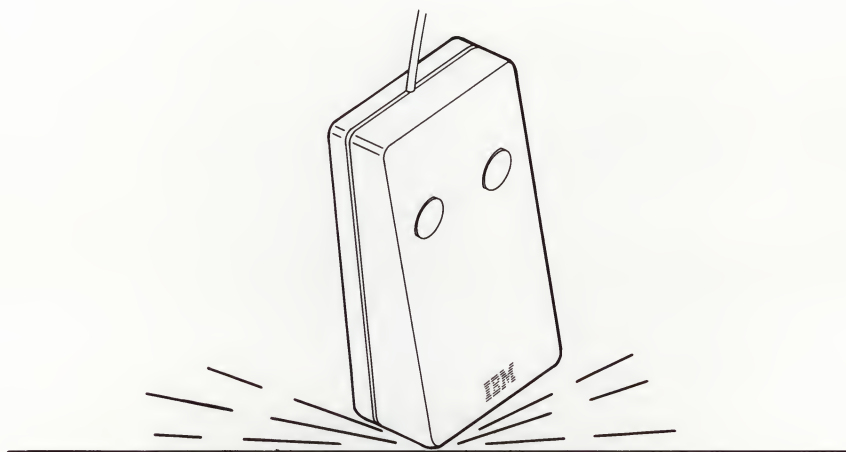
## Handling the Mouse Incorrectly

You can damage the mouse if you handle it incorrectly. The following examples describe incorrect mouse handling.

- Don't operate the mouse on cloth, unfinished wood, newspaper, or carpet.

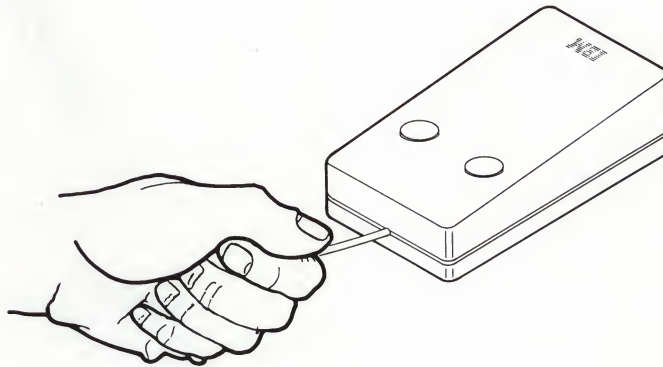


- Don't drop or hit the mouse.

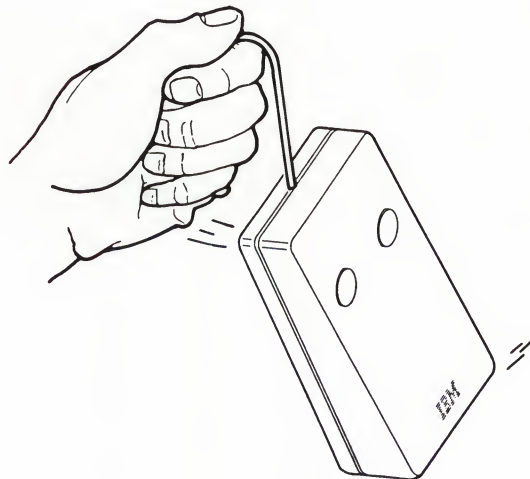




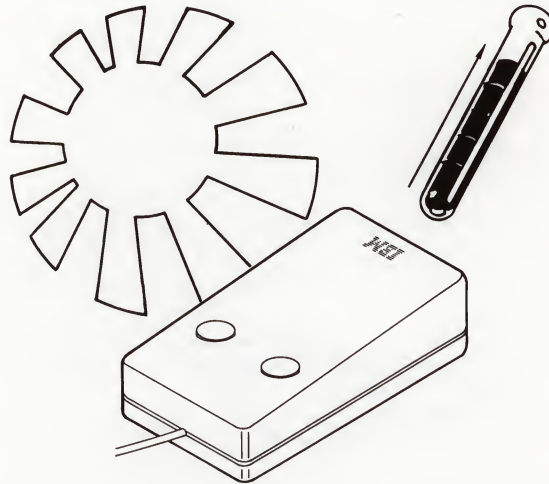
- 
- Don't pull the cable. You may cause damage to the cable and the connector.



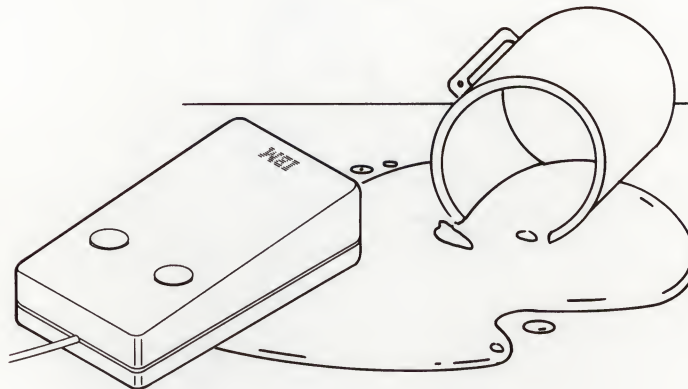
- Don't carry the mouse by holding onto the cable.



- 
- Don't expose the mouse to extreme temperatures or direct sunlight.



- Don't place the mouse in liquid spills.



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## Mouse Preventive Maintenance

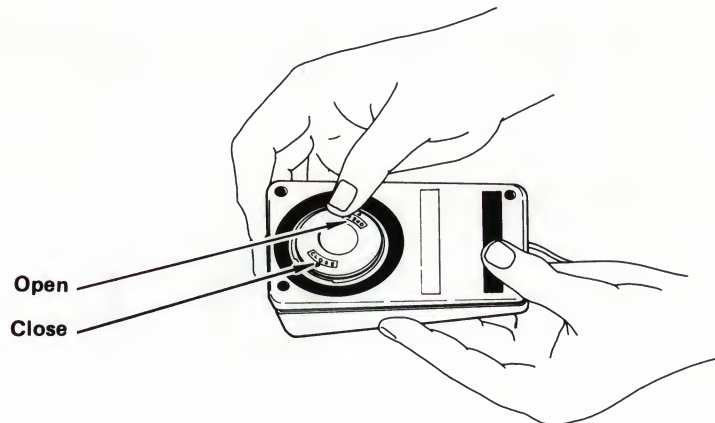
Inspecting your work surface helps to prevent the transfer of contaminants to the interior of the mouse by the roller ball.

1. Inspect the work surface for spills or other contaminants.
2. Dust the work surface.
3. If you are using a paper pad, inspect it for wear and replace it if necessary.

## Mouse Cleaning

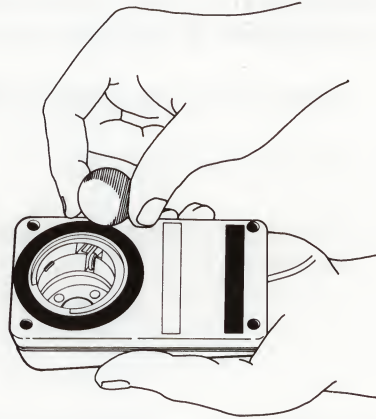
The following steps describe how to clean the mouse.

1. Remove the snap-out cover by pushing the **open** arrow.

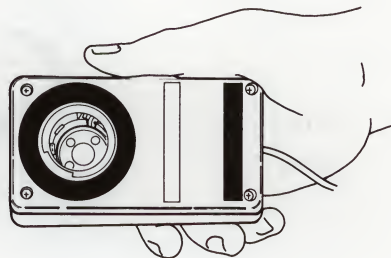




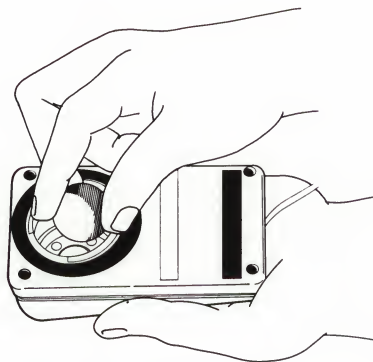
- 
2. Remove the roller ball.



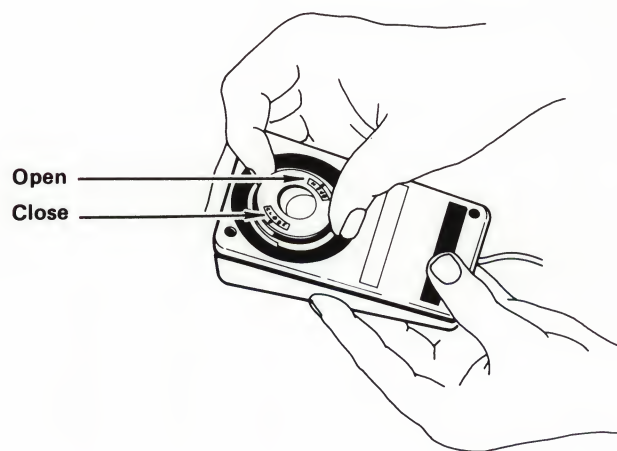
3. Inspect the roller ball for contaminants. Wipe it clean with a dry, lint-free cloth.
4. If the roller ball is dirty, wash it in warm, soapy water. Rinse and wipe the roller ball with a lint-free cloth until dry.
5. Inspect the roller ball cavity in the mouse for foreign materials. If there are any foreign materials, remove them.



- 
6. Replace the roller ball.



7. Replace the cover on the mouse with the **open** arrow aligned with the slot in the roller ball cavity.



8. Close the cover by pushing the **close** arrow.





## **Section 3. Using the Displays**

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## About This Section

Read this section to become familiar with how to operate the:

- IBM 5151 Personal Computer Display
- IBM 5154 Personal Computer Enhanced Color Display
- IBM 6153 Advanced Monochrome Graphics Display
- IBM 6154 Advanced Color Graphics Display
- IBM 6155 Extended Monochrome Graphics Display
- IBM 5081 Color Graphics Display

This section describes the features of the displays supported by the IBM RT PC System.

## Introducing the Displays

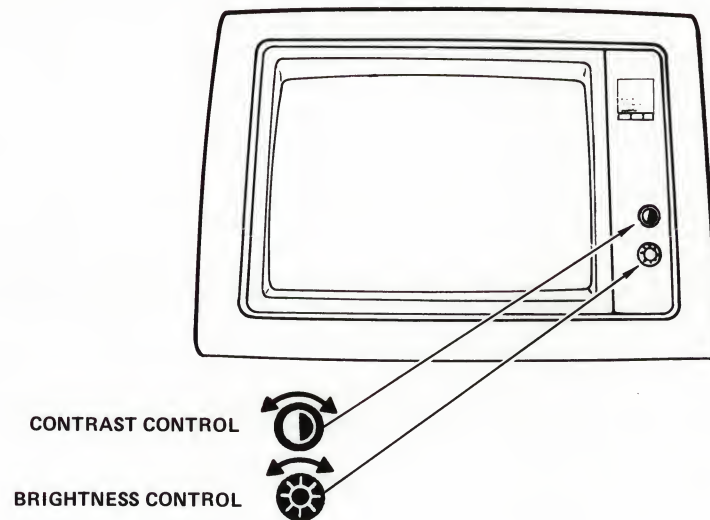
A display is a device for visual presentation of information and is required for interactive transactions with the AIX Operating System. These displays have the following features:

- The IBM 5151 Personal Computer Display provides green characters on a grey background.
- The IBM 5154 Personal Computer Enhanced Color Display and IBM 6154 Advanced Color Graphics Display display simultaneously up to 16 colors out of a possible 64.
- The IBM 6153 Advanced Monochrome Graphics Display and IBM 6155 Extended Monochrome Graphics Display provide black characters on a white background or white characters on a black background.
- The IBM 5081 Color Graphics Display is an interactive display. It has a blue-black background with green characters.



---

## IBM 5151 Personal Computer Display

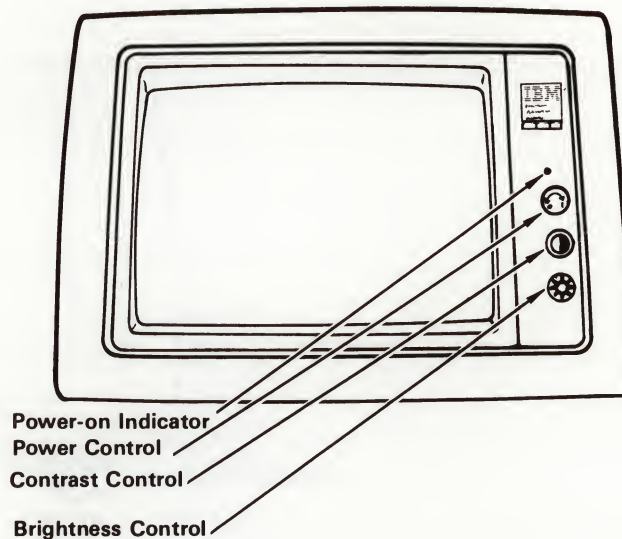


The Brightness Control on the IBM 5151 Personal Computer Display increases the brightness of the entire screen when it is turned clockwise, and decreases the brightness when it is turned counterclockwise.

The Contrast Control increases the brightness of the data displayed on the screen when turned clockwise, and decreases the brightness when turned counterclockwise.

---

## IBM 5154 Personal Computer Enhanced Color Display



The Power Control turns on the IBM 5154 Personal Computer Enhanced Color Display when turned clockwise, and turns it off when turned counterclockwise. The Power-On Indicator lights when the display is turned on.

The Contrast Control changes the difference in intensity between the light and dark colors when it is pulled out and turned. The Contrast Control increases the contrast when it is turned clockwise, and decreases the contrast when it is turned counterclockwise. With the control pushed in, the contrast returns to a preset value.

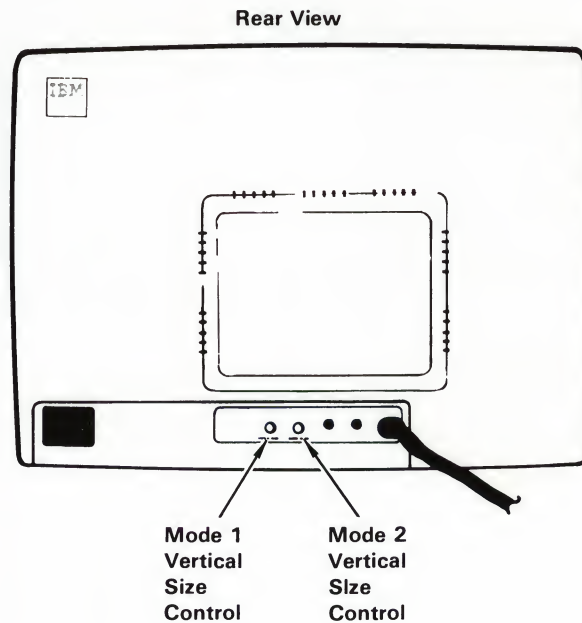
The Brightness Control increases the intensity of the colors on the screen when it is turned clockwise, and decreases the intensity when it is turned counterclockwise.

---

## Vertical Size Control Modes

You can modify the height of the figures on the screen with the two vertical size controls. Mode 1 Vertical Size Control is operational when the IBM 5154 Personal Computer Enhanced Color Display is in the Normal Color Mode. Mode 2 Vertical Size Control is operational when the IBM 5154 Personal Computer Enhanced Color Display is in the Enhanced Color mode. The Normal Color Mode and the Enhanced Color Mode are application controlled. These controls are independent of each other and operate in their particular mode.

If the vertical size needs adjustment, determine the mode you are using, and move the corresponding vertical size control until the display reaches your preferred setting.

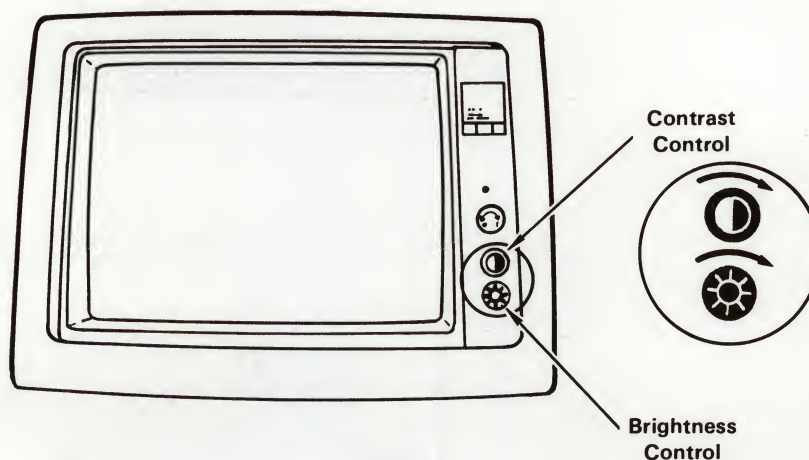


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## Testing the Vertical Size Controls

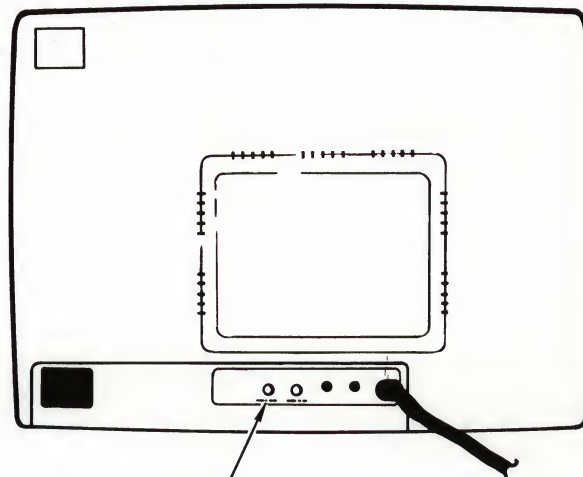
Use the following steps to test the Mode 1 Vertical Size Control and the Mode 2 Vertical Size Control.

1. Turn the power off to the system unit.
2. Turn the Power Control on.
3. Turn the Brightness and Contrast Control fully clockwise.



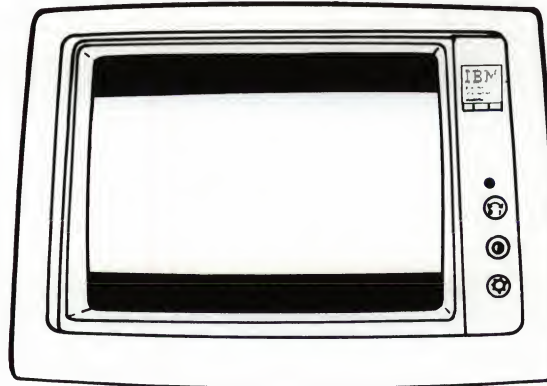


- 
4. Turn the Mode 1 Vertical Size Control fully counterclockwise.



Mode 1 Vertical Size Control

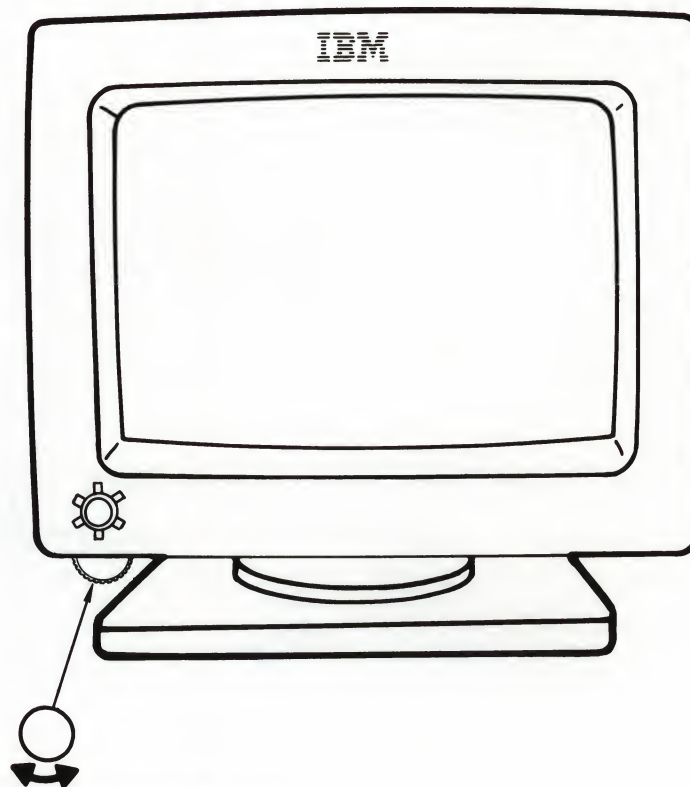
5. A black area should appear across the top and bottom of the screen.



- 
6. Turn the Mode 1 Vertical Size Control clockwise until the black areas at the top and bottom of the screen disappear. If one of the black areas disappears before the other, continue to turn the Mode 1 Vertical Size Control until the second black area is gone.
  7. Adjust the Brightness and Contrast Controls for eye comfort.
  8. Repeat steps 1-7 using the Mode 2 Vertical Size Control.

---

## IBM 6153 Advanced Monochrome Graphics Display



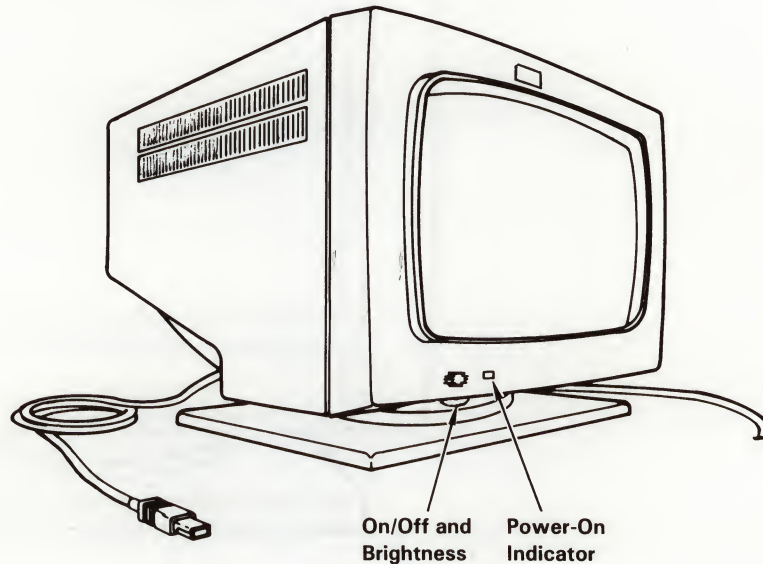
**Brightness and Raster Test Control**

The Brightness and Raster Test Control increases the intensity of the entire screen when it is turned clockwise and decreases the intensity when it is turned counterclockwise.

When the Brightness and Raster Test Control is turned fully clockwise, a **raster** is displayed regardless of any input to the monitor. A raster is a predetermined pattern of lines that provides uniform coverage of a display space. The raster position is used to test the display for proper operation. For normal operation, the Brightness and Raster Test Control should not be turned fully clockwise.

---

## IBM 6154 Advanced Color Graphics Display

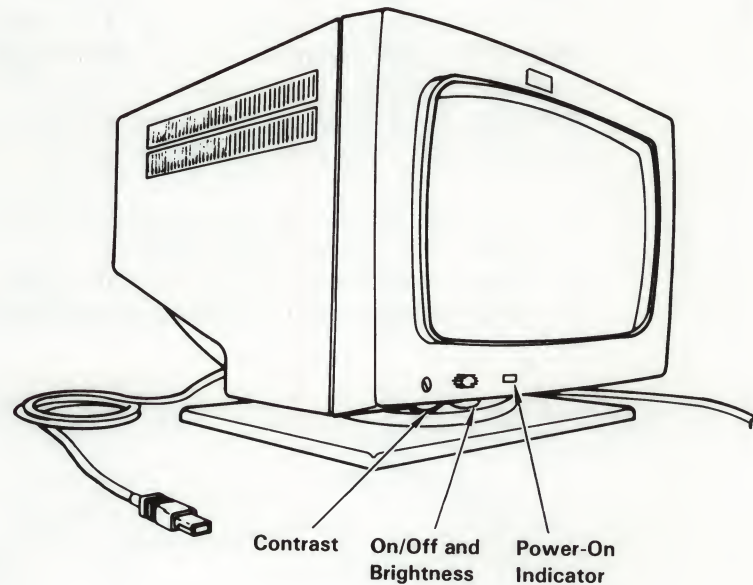


The single control on the Advanced Color Graphics Display is used to power on the display and for brightness control. The Brightness Control increases the brightness of the entire screen when it is turned clockwise., and decreases the brightness when it is turned counterclockwise. The display power is turned off, when the Power On/Off and Brightness Control is turned fully counterclockwise.

The Power-On Indicator shows when power is available at the display.



## IBM 6155 Extended Monochrome Graphics Display



The Power On/Off and Brightness Control on the IBM 6155 Extended Monochrome Graphics Display turns the display power on or off and is used to increase or decrease the brightness. The brightness is increased when the control is turned clockwise. To decrease the brightness or turn the display power off, the control is turned counterclockwise.

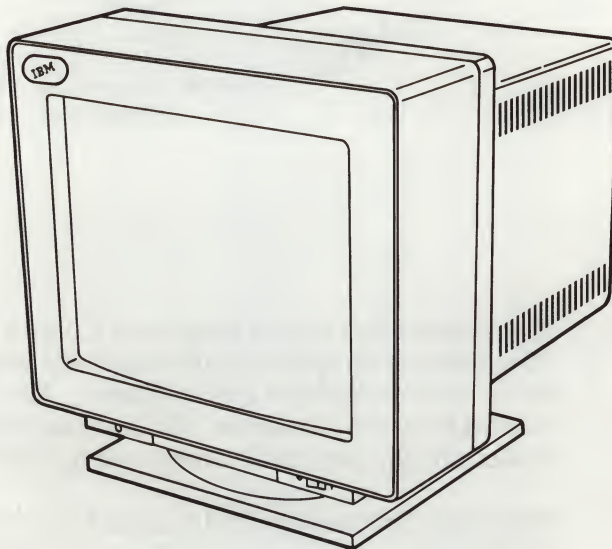
When the Contrast Control is turned clockwise, the intensity is increased. To decrease the intensity, the Contrast Control is turned counterclockwise.

The Power-On Indicator lights when the display is turned on.

## IBM 5081 Color Graphics Display

The information in this section applies only to the IBM 5081 Color Graphics Display Models 16, 19, and 12, and to the 5081 Monochrome Graphics Display Model 11. The 5081 Display attaches to any IBM RT PC which has a Megapanel Display Adapter installed. When connected to the IBM 5081 Color Graphics Display, the IBM RT PC functions as an interactive graphics workstation. You can tilt or turn the display on its base to fit your work needs. The following recommendations can make working at you display more comfortable:

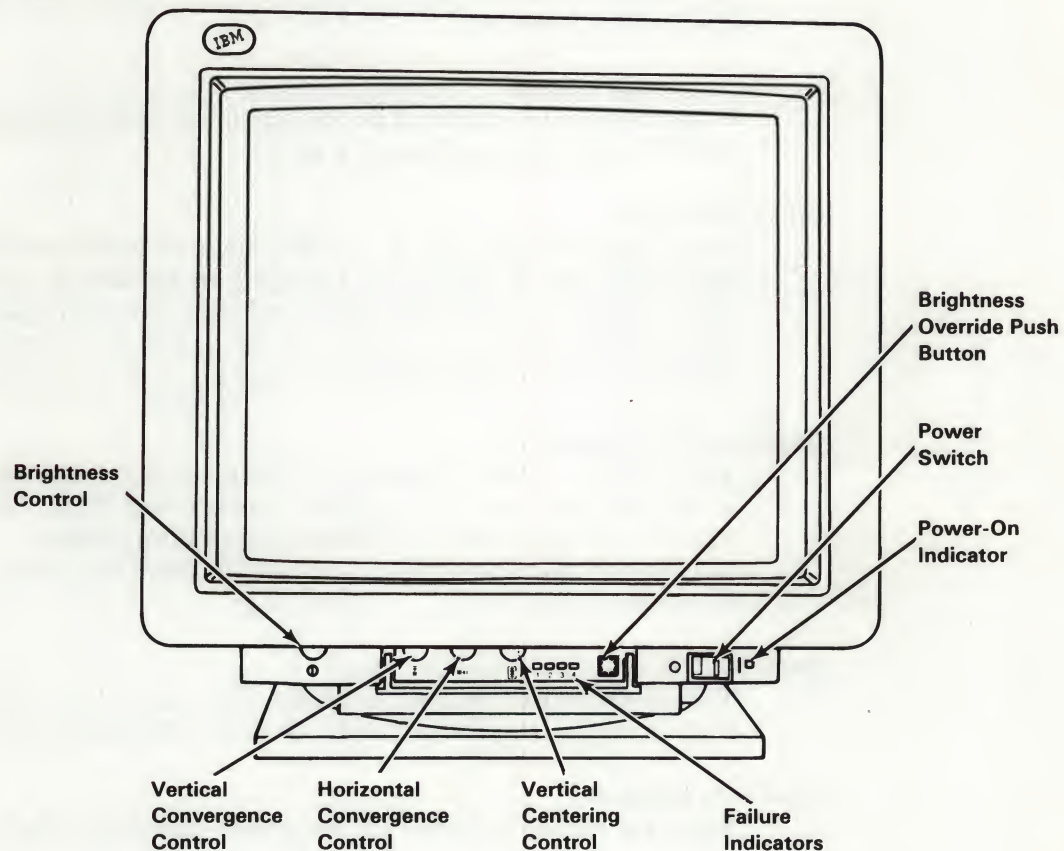
1. To adjust the background brightness, load any application software. Adjust for your viewing comfort.
2. Avoid using blue characters on a dark background.
3. Avoid using a viewing distance of less than 20 inches.



## Locating the Display Controls

This figure shows all the control buttons for the IBM 5081 Color Graphics Display. These buttons are located on the front of the display. Controls include the power switch, indicator lights, and picture quality controls.

The controls for the models 11 and 12 are similar to the controls for the models 16 and 19, but are arranged differently.





## **Description Of Display Controls**

### **Brightness Control**

To increase the brightness of the display, turn the brightness control clockwise. Adjust the display to produce the amount of light with which you are most comfortable.

### **Vertical And Horizontal Convergence Controls**

Since the color is adjusted in the factory, you generally will not have to make any adjustments. If, however, the colors do not converge into solid lines, then adjust the vertical or horizontal convergence controls until they do.

### **Vertical Centering Control**

If the image is not centered on the screen vertically, adjust the vertical centering control until it is.

### **Failure Indicators**

These indicators are used by service personnel to diagnose display failures. If one or more of the red lights are on with no apparent display failure, turn the display off and then turn it on again to reset the indicators. If one or more of the red lights are on after you have done this, refer to the *IBM RT PC Problem Determination Guide*.

### **Brightness Override Button**

The brightness override button may be pressed to verify that the display is operating properly when there is a loss of the video signal from the Megapel adapter. Pressing this button causes a background raster to appear. This may be done even when an image is on the screen.

### **Power Switch**

To turn the power on, push in on the right side of the power switch. Push in on the left side of the switch to turn the power off.

### **Power-On Indicator**

When the display is turned on, the power-on indicator lights up.

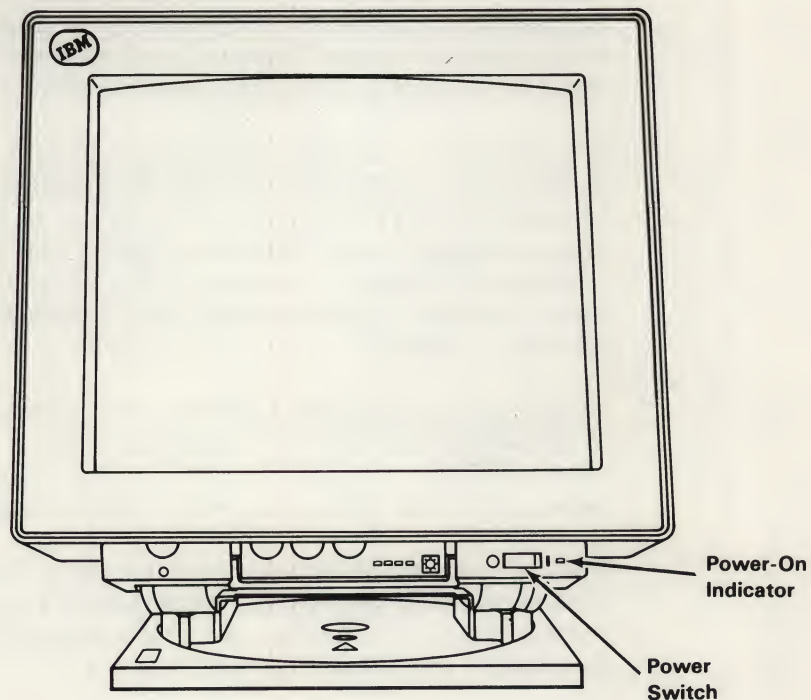


## Turning the Display Power ON

**Warning:** Objects placed on top of the display block the air vents and could cause the display to overheat.

To turn the IBM 5081 Color Graphics Display on, press the Power Switch on the right side.

When the IBM RT PC is turned on, the system automatically begins the IPL process, displaying a series of numbers in the two-digit display window. When this process is complete, a **LOGIN** command appears on the screen. If this command does not appear, refer to the *IBM RT PC Problem Determination Guide*.



## **Cleaning the Display**

The display screen may be cleaned with IBM Thin Film Cleaner (#7034436) or its equivalent. Do not use abrasive cleaners or cleaners containing silicone.

## **Using Additional View-Only Displays**

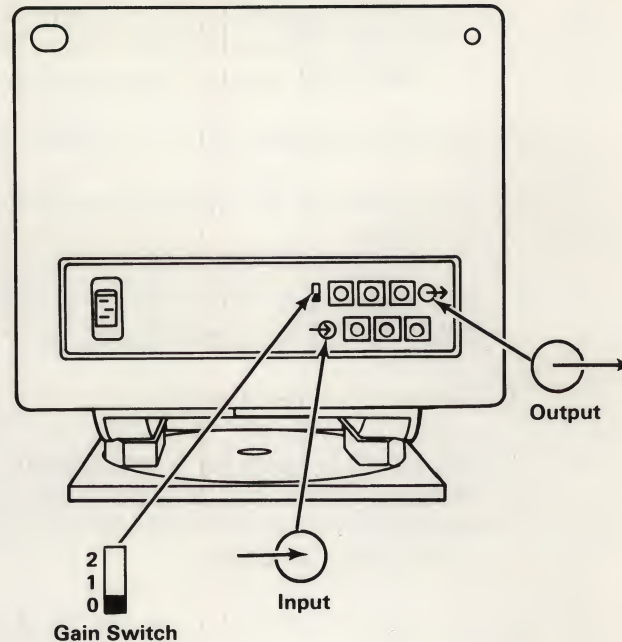
You can connect one IBM 5081 Color Graphics Display to the IBM RT PC to create an interactive graphics workstation. You can also attach up to four view-only displays in a daisy-chain format.

However, when you add additional displays, you may experience some signal loss if the length of the cable between any two displays is longer than 66 feet. The principal way to correct for this loss is to reset the gain switch. Adjusting the gain switch on any one of the displays will affect the strength of the signal to the next display. It will have no effect on the strength of the signal to the display whose gain switch is being adjusted.

The gain switch, located at the back of the IBM 5081 Display, has three positions: 0, 1, and 2. On the IBM 5081 models 16 and 19, this switch controls the OUTPUT signal level, which is the INPUT signal received by the next display on the video link. On the IBM 5081 models 11 (monochrome) and 12, the switch controls the INPUT signal level to the current display. It does not effect the OUTPUT signal level for the subsequent display.

As an approximate guide, use gain position 0 for video cable lengths of up to 66 feet between any two displays, position 1 for cable lengths between 66 and 197 feet between any two displays, and position 2 for lengths between 197 and 328 feet between any two displays.

**Note:** There will be some reduction in signal strength whenever the distance between displays is greater than 66 feet, even when the gain switch is set on 1 or 2. In addition, the total amount of cable used between all of the displays should not exceed 328 feet.



To select the most effective gain switch setting for each view-only display, use the following procedure:

1. If you are already in AIX, type and enter the command **Shutdown**.
2. When **Shutdown** is complete, Turn the system off.
3. Turn the brightness control on each display all the way up (clockwise).
4. Insert the IBM RT PC Diagnostic Diskette #1 in Drive A, and turn the system on. The system will automatically IPL.
5. The **DIAGNOSTIC OPERATING INSTRUCTIONS** display. Read them and then press **Enter** to continue.
6. When the **FUNCTION SELECTION** menu displays, choose Diagnostic Routines.



**Note:** If you have changed your configurations since the previous session or if a component is malfunctioning, the TEST OPTION menu displays. This is followed by the DIAGNOSTIC TEST LIST menu. Follow the instructions.

7. The DIAGNOSTIC SELECTION menu displays.
8. Choose the RT PC Megapel Processor And Printer Adapter In Slot X Checkout.
9. When prompted, change diskettes in drive A. The TEST METHOD SELECTION menu will display.
10. Choose, Run Test One Time.
11. The screen is blank for 1 to 2 minutes while the diagnostics check the Megapel adapter and, if the port is enabled, the printer port. When the diagnostics finish, the message Testing The Megapel Processor And Printer Adapter displays.
12. The system is now ready to display the Crosshatch Pattern. Press **Enter**.
13. The Crosshatch Pattern displays. Follow the displayed instructions to check the adjustment of the IBM 5081 interactive display and the adjustment of all attached view-only displays. The interactive display is connected directly to the Megapel adapter.
14. If adjustment is needed refer to appendix A, "IBM 5081 Color Graphics Display Test Patterns" in the *IBM RT PC Problem Determination Guide*. If adjustment is necessary, each display in the series should be adjusted one after the other starting with the interactive display.
15. Press **End** when all of the displays are adjusted correctly.
16. A message displays asking if the IBM 5081 display is adjusted correctly.  
  
If the answer is no, type the number 2 and press **Enter**. A Service Request Number (SRN) displays. Follow the instructions.



If the answer is yes, type the number 1 and press **Enter**. The message Testing IBM Megapel Processor And Printer Adapter displays. The system is now ready to display the Color Bar Pattern. Press enter.

17. The Color Bar Pattern displays. Follow the displayed instructions to check the adjustment of the IBM 5081 interactive display and the adjustment of all attached view-only displays.
18. If adjustment is needed refer to appendix A, "IBM 5081 Color Graphics Display Test Patterns" in the *IBM RT PC Problem Determination Guide*. If adjustment is necessary, each display in the series should be adjusted one after the other starting with the interactive display.
19. A message displays asking if the color bar is adjusted correctly.  
  
If the answer is no, type the number 2 and press **Enter**. A Service Request Number (SRN) displays. Follow the instructions.  
  
If the answer is yes, type the number 1 and press **Enter**. The message No Trouble Found displays.
20. To exit, remove the diskette from the disk drive.
21. Press CTRL, ALT, and PAUSE simultaneously.
22. The system returns you to the Login screen.



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## **Section 4. Using Other Input Devices**

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IBM 5080 Dials Feature .....	4-4
IBM 5083 Tablet .....	4-5
IBM 5080 Lighted Program Function Keyboard Feature .....	4-6



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## About This Section

Read this section to become familiar with the following input devices:

- IBM 5080 Dials Feature
- IBM 5083 Tablet
- IBM 5080 Lighted Program Function Keyboard Feature

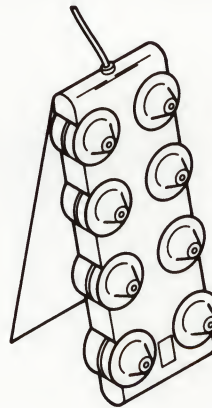
This section describes the use of these devices.

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## IBM 5080 Dials Feature

The IBM 5080 Dials Feature is a compact, desktop unit with eight conelike controls that are easily turned with your fingers. The controls, or dials, are arranged in two rows of four dials. The direction and extent to which you turn the controls is transmitted through the IBM RT PC to the 5085 system for interpretation by the application program.

Normal use of the dials includes panning, zooming, and rotation of two- and three-dimensional images.

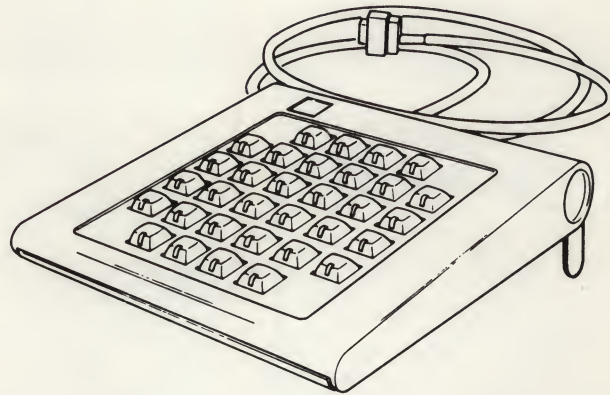


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## IBM 5080 Lighted Program Function Keyboard Feature

The Lighted Program Function Keyboard Feature (LPFK) is a separate keyboard with 32 keys. Each key can be lit. The lights are controlled by interactive graphics application programs. The programs can turn the lights on or off to show the keys you may select at any given time.

A test switch located at the back of the LPFKs is used to verify that all of the lights are working correctly.

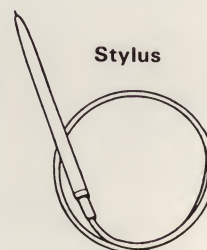
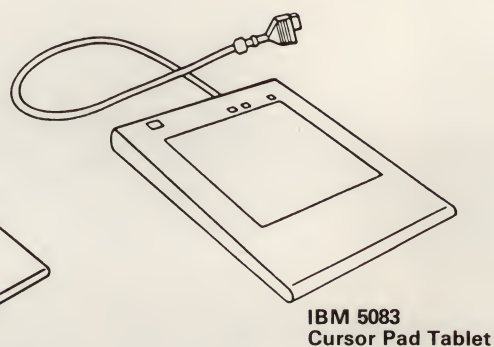
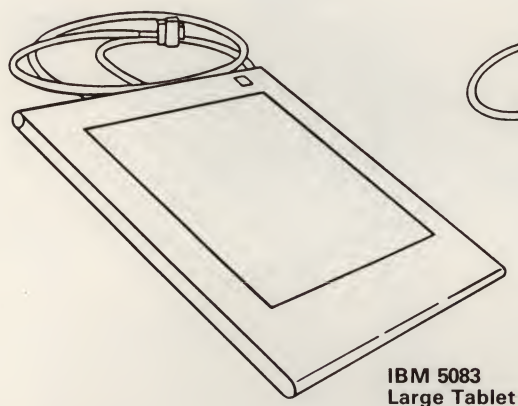


## IBM 5083 Tablet

The IBM 5083 Tablet is a thin, flat device which you may operate with either the tablet cursor or stylus.

The tablet cursor is a mouse-like device with four buttons. When the cursor is moved on the surface of the tablet, the tablet provides the location to the software. When the buttons are pressed, the tablet provides an identifying code to the software.

The stylus is a pen-like device used to point to a position on the surface of the tablet. When the stylus is pressed, the tablet provides the location of the stylus to the software.





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## **Section 5. Moving the System**

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## About This Section

This section helps you prepare either the IBM 6150 System Unit or the IBM 6151 System Unit to be moved.

The section also provides detailed instructions for packing the IBM 6150 System Unit, which require special handling.

---

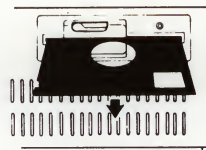
## Before the Move

Perform the following steps before you pack the system unit for the move.

1. Before you move the system, make backup copies of the information stored on the fixed-disk drives. See *Using and Managing the AIX Operating System* for instructions on backing up data.
2. Remove any diskettes from the diskette drives.



IBM RT PC 6150  
System Unit

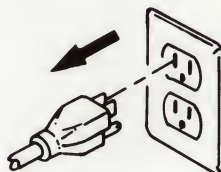


IBM RT PC 6151  
System Unit

3. Turn off the power on *all* devices.



4. Unplug all power cables from the electrical outlets.



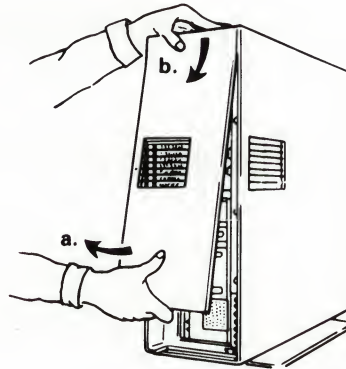


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5. Remove the rear cover from the system unit.

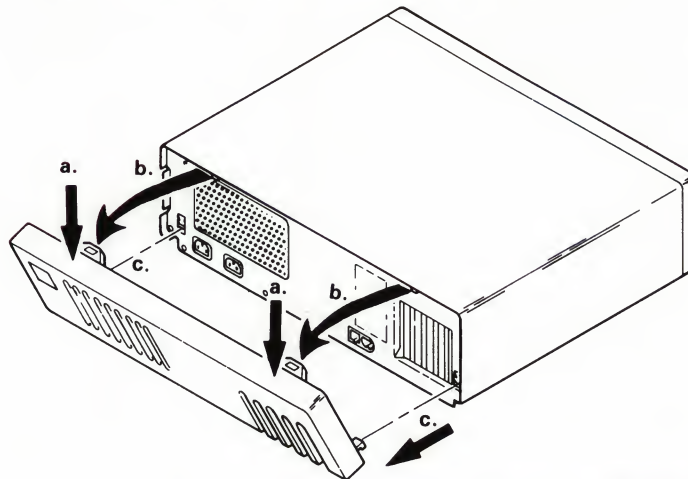
- IBM 6150 System Unit

- a. Snap the bottom free of the unit.
- b. Lower the cover until the hooks are free of the frame.

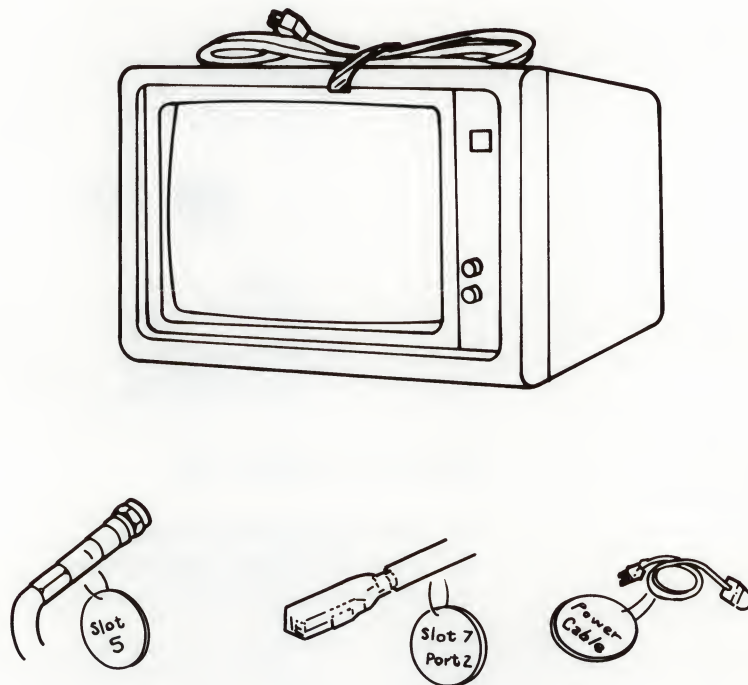


- IBM 6151 System Unit.

- a. Push down on the cover.
- b. Free the hooks from the loops.
- c. Free the bottom hooks from the frame.



- 
6. Unplug, coil, and tape *all* cables. Label the cables to ensure that you recable the system correctly.



---

## **What Type of Move Are You Making?**

If you move the devices within the same building, you do not need to pack the devices in cartons. See “Short Distance Move” on page 5-8.

If you transport the devices in a vehicle, pack them in shipping cartons. See “Packing for a Long Distance Move” on page 5-10.

---

## Short Distance Move

Although you do not have to pack the devices in cartons to move them within the same building, handle all devices carefully.

**Warning:** To prevent loss of data, move the system units carefully to avoid damaging the fixed-disk drives.

### IBM 6150 System Unit

#### CAUTION

Two or more people should lift the IBM 6150 System Unit, which weighs up to 42 kg (92 lb). Use a dolly if possible.





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## IBM 6151 System Unit

### CAUTION

Two or more people should lift the IBM 6151 System Unit, which weighs 25 kg (56 lb).



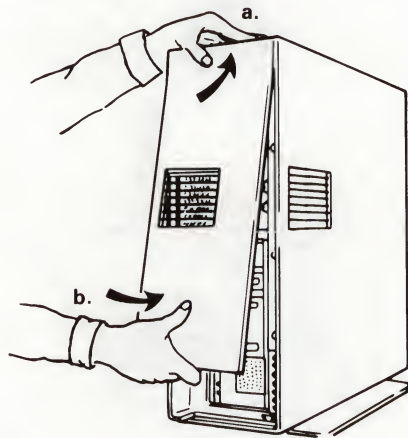
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## Packing for a Long Distance Move

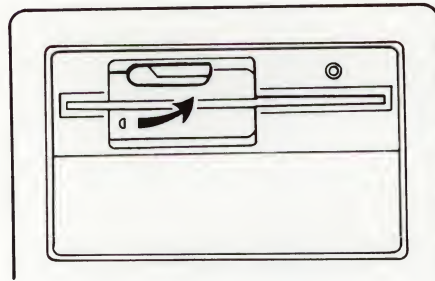
To provide the best protection, use the original packing materials or materials designed for each device. If you do not have the correct packing materials, contact the point of purchase to obtain them.

Use the following instructions for packing the IBM 6150 System Unit:

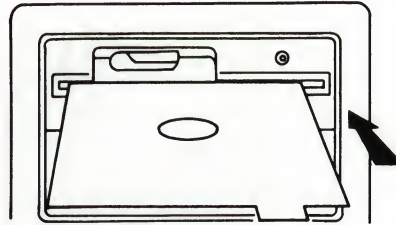
1. Snap the rear cover into position.



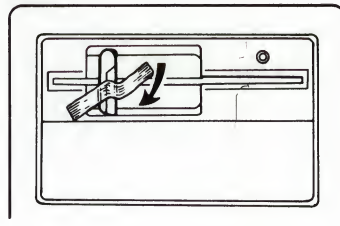
2. Open the diskette drive.



- 
3. Insert the shipping card.



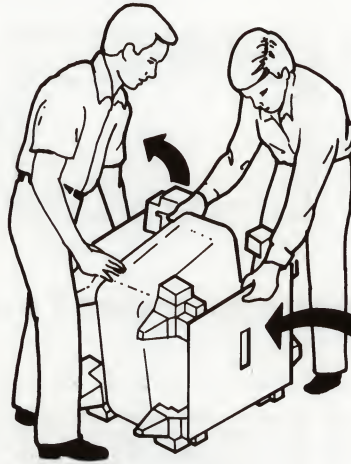
4. Close the lever and tape it in position.



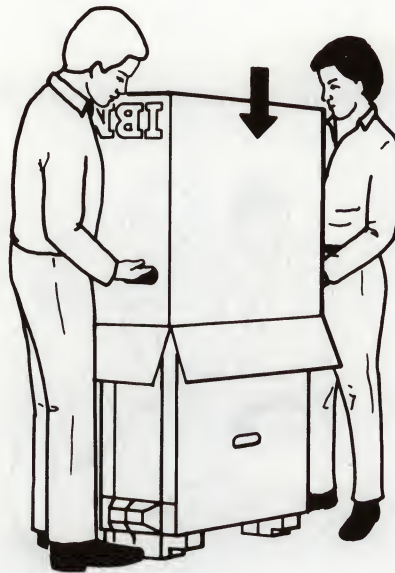
5. Tilt the unit to one side and put the packing pad in place.



- 
6. Tilt the unit to the other side, putting the other packing pad in place.

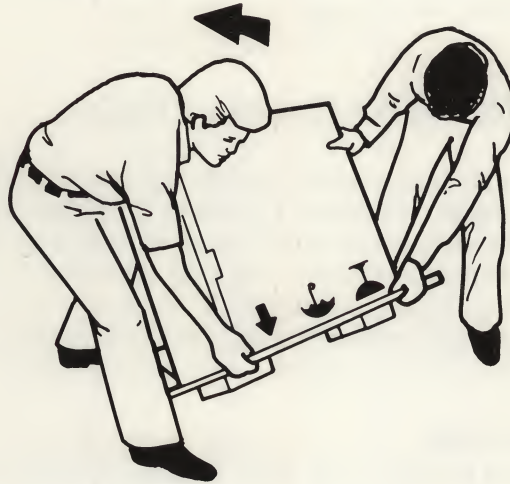


7. Lower the carton onto the system unit.





8. Lay the unit on its side and tape the flaps shut.



**Warning:** The unit is shipped upside down because it is top heavy and is more stable upside down.

Ensure that the end of the shipping carton containing the base of the unit is labeled "Open This End" and that the graphics on the carton point upward toward the base. The base of the unit should come out of the carton first when the unit is unpacked.

After the move, use the forms and the instructions stored in the *IBM RT PC User Setup Guide* and follow the setup, cabling, and testing procedures.

## **Moving the IBM 5081 Color Graphics Display**

The IBM 5081 Display must be disconnected from the IBM RT PC prior to relocating the system.

### **Disconnecting the IBM 5081 Color Graphics Display**

1. Remove the power cord plug from the wall socket.
2. Remove the power connector from the rear left corner of the display.
3. Disconnect the cable on the right rear of the display by turning the knurled portion of each plug counterclockwise until it unlocks. Slide the plug off the receptacle.
4. Coil and tape all cables. Label the cables to ensure that you can recable the system correctly.

#### **CAUTION**

**Do not lift the IBM 5081 Display by yourself.**

#### **Short-Distance Moves**

For point-to-point moves that do not require trucking, use a pushcart to move the IBM 5081 Display. Be sure to place the display securely on the cart.

#### **Long-Distance Moves**

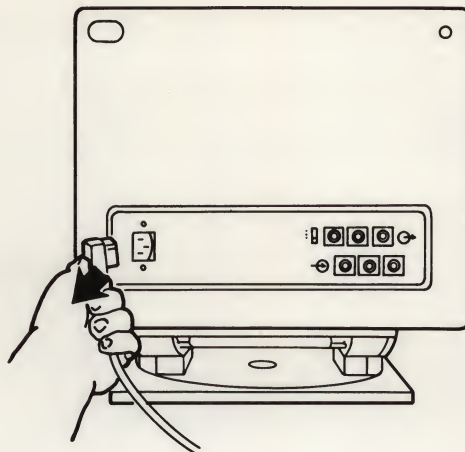
If you saved the original packing material, use it to repack your IBM 5081 Display. If you use a new carton, be sure the unit is well cushioned.

#### **Installation at Your New Location**

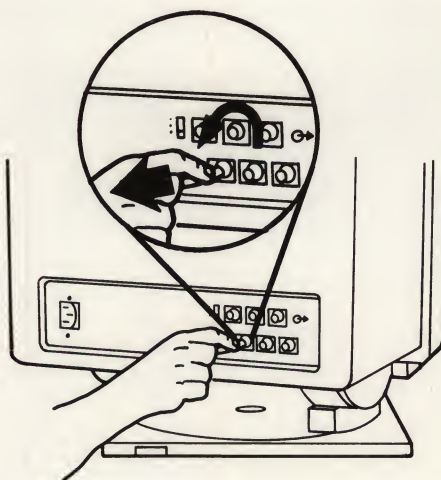
For instructions on how to set up the IBM 5081 Display, refer to the *IBM RT PC User Setup Guide*.

## Moving the IBM 5081 Color Graphics Display

Remove the power cord from the rear of the display.



Disconnect the cables from the rear of the display.







---

## Section 6. Printers

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---

## About This Section

Specific operating information for each printer attached to an IBM RT PC System can be found in the operator's guide for that printer. The operator's guide is shipped with the printers. For convenient reference, you can insert the printer documentation in this section.

For information on attaching the printer to the IBM RT PC System, see the *User Setup Guide*.





---

## **Section 7. Plotters**

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## About This Section

Specific operating information for each plotter attached to an IBM RT PC System can be found in the operator's guide for that plotter. The operator's guide is shipped with the plotter. For convenient reference, you can insert the plotter documentation in this section.

For information on attaching the plotter to the IBM RT PC System, see the *User Setup Guide*.





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## **Section 8. Terminals**

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## About This Section

Operating instructions for terminals supported by IBM RT PC can be found in the operator's guide for the terminal. The operator's guide is shipped with the terminals. For convenient reference, you can insert the guide in this section.





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## **Section 9. IBM 6157 Streaming Tape Drive**

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## **CONTENTS**

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---------------------------------	------------

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## About This Section

Operating instructions for the IBM 6157 Streaming Tape Drive can be found in the *IBM 6157 Streaming Tape Drive Setup and Operating Instructions*. The operator's guide is shipped with the IBM 6157 Streaming Tape Drive. For convenient reference, you can insert the instructions in this section.





---

## Glossary

**application program.** A program used to perform an application or part of an application.

**button.** A key on a mouse that is used to select buttons on the display screen or to scroll the display image.

**byte.** The amount of storage required to represent one character; a byte is 8 bits.

**character delete.** In text data, the action that erases the character at the current cursor location and moves any trailing text one character position to the left.

**character key.** A keyboard key that allows the user to enter the character shown on the key. Compare with function keys.

**character position.** On a display, each location that a character or symbol can occupy.

**character set.** A group of characters used for a specific reason; for example, the set of characters a printer can print or a keyboard can support.

**color display.** A display device capable of displaying more than two colors and the shades produced via the two colors, as opposed to a monochrome display.

**cursor.** A movable symbol (such as an underline) on a display, used to indicate to the

operator where the next typed character will be placed.

**cursor movement keys.** The directional keys used to move the cursor without altering text.

**delete.** To remove. For example, to delete a file.

**diskette.** A thin, flexible magnetic plate that is permanently sealed in a protective cover. It can be used to store information copies from the disk.

**diskette drive.** The mechanism used to read and write information on diskettes.

**display device.** An output unit that gives a visual representation of data.

**display screen.** The part of the display device that displays information visually.

**enter.** Send information to the computer by pressing the Enter key.

**fixed disk.** A flat, circular, nonremoveable plate with a magnetizable surface layer on which data can be stored by magnetic recording.

**fixed-disk drive.** The mechanism used to read and write information on fixed disk.

**formatted diskette.** A diskette on which control information for a particular computer system has been written but which may or may not contain any data.

**function keys.** Keys that request actions but do not display or print characters. Included are the keys that normally produce a printed character, but when used with the code key produce a function instead. Compare with character key.

**graphic character.** A character that can be displayed or printed.

**graphics.** A type of data created from fundamental drawing units such as lines, splines, curves, and polygons.

**hard file.** See *fixed disk*.

**hardware.** The equipment, as opposed to the programming, of a system.

**ID.** Identification.

**initial program load (IPL).** The process of loading the system programs and preparing the system to run jobs.

**IPL.** See initial program load.

**K-byte.** See *kilobyte*.

**key pad.** A physical grouping of keys on a keyboard (numeric keypad, cursor keypad, etc.).

**keyboard.** An input device consisting of various keys allowing the user to input data, control

cursor and pointer locations, and to control the user and workstation dialogue.

**keylock feature.** A security feature in which a lock and key can be used to restrict the use of the display station and the system unit.

**kilobyte.** 1024 bytes.

**label.** The name in the disk or diskette volume table of contents that identifies a file.

**log in (v).** To sign on at a work station.

**log off (v).** To sign off at a work station.

**M-byte.** See megabyte.

**megabyte.** 1,048,576 bytes.

**mouse.** A locator device hand-operated by moving it on a surface. The mouse is used to provide cursor positioning and graphic input.

**password.** A string of characters that, when entered along with a user identification, allows an operator to login to the system.

**pointing.** The action of positioning the pointing cursor on a displayed object.

**pointing cursor.** A cursor used to point to and select buttons, to activate panes, and to scroll the contents of the active pane. The pointing cursor is controlled by the mouse.

**power-on light.** A light on the operator panel that indicates that the DC power in the system unit is okay.



---

**Power On Self Test (POST).** An internal diagnostic program activated each time the system is turned on.

**problem determination.** The process of identifying why the system is not working. Often this process identifies programs, equipment, data communications facilities, or user errors as the source of the problem.

**problem determination procedure.** A prescribed sequence of steps aimed at recovery from, or circumvention of, problem conditions.

**process.** (1) A sequence of discrete actions required to produce a desired result. (2) An entity receiving a portion of the processor's time for executing a program. (3) An activity within the system begun by entering a command, running a shell program, or being started by another process.

**program.** A file containing a set of instructions conforming to a particular programming language syntax.

**raster array.** In computer graphics, a predetermined arrangement of lines that provide uniform coverage of a display space.

**reset.** To return a device or circuit to a clear state.

**screen.** See *display screen*.

**security.** The protection of data, system operations, and devices from accidental or intentional ruin, damage, or exposure.

**special character.** A character other than an alphabetic or numeric character. For example, \*, +, and % are special characters.

**system.** The computer and its associated devices and programs.

**system unit.** The part of the system that contains the processing unit, the fixed-disk drive and the fixed disk, and the diskette drive.

**text.** A type of data consisting of a set of linguistic characters (for example, alphabet, numbers, symbols) and formatting controls.

**text cursor.** A cursor that indicates where to type the next character. The text cursor is controlled by the keyboard.

**two-digit display.** Two seven-segment light-emitting diodes (LEDs) on the operator panel used to track the progress of power-on self-tests (POSTs).

**virtual resource manager (VRM).** A set of programs that manage the hardware resources (main storage, disk storage, display stations, and printers) of the system so that these resources can be used independently of each other.





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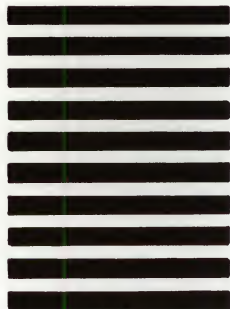
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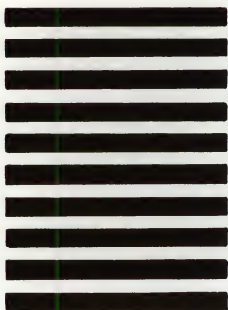
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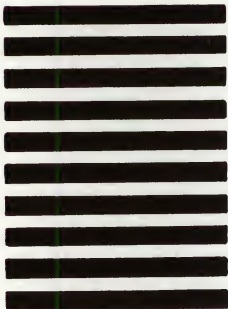
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# **IBM TECHNICAL NEWSLETTER**

for the

## **IBM RT PC**

### **GUIDE TO OPERATIONS**

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**May 1987**  
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## Summary of Changes

Perform the following:

### Remove Pages

ix thru xii

2-9 thru 2-10

2-15 thru 2-16

2-19 thru 2-22

3-1 thru 3-4

None(pages added)

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### Insert Update Pages

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2-15 thru 2-16

2-19 thru 2-22

3-1 thru 3-4

3-13 thru 3-22

4-5 thru 4-6

5-13 thru 5-15

X-5 thru X-8

**Note:** Please file this cover letter at the back of the manual to provide a record of changes.

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# **IBM 6157 Magneetbandstation**

**Installatie en bediening**

**IBM**

92X1453

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**Eerste uitgave (juli 1985)**

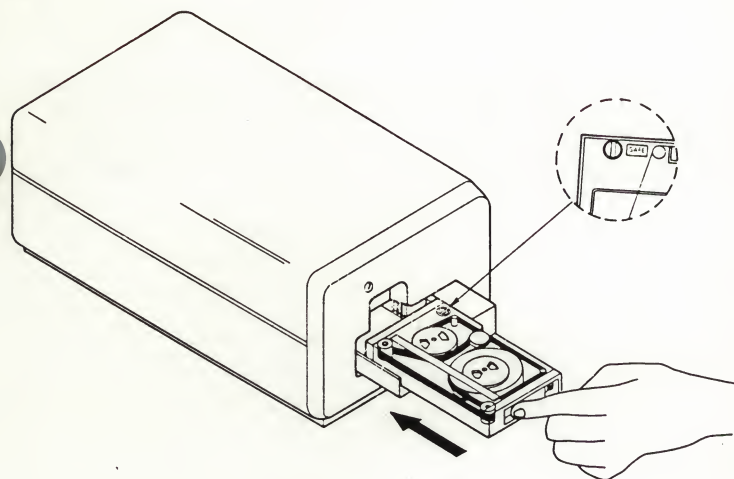
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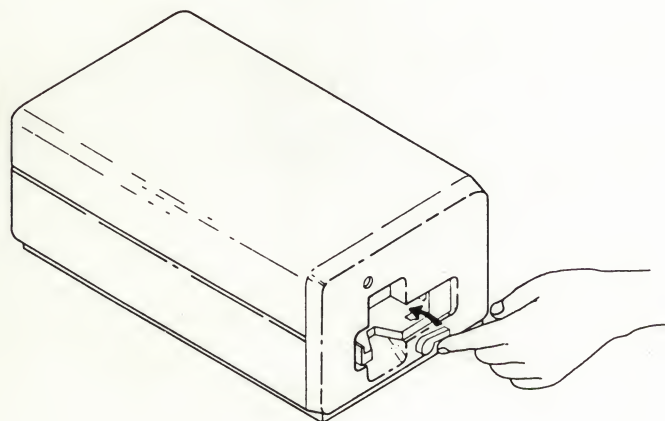
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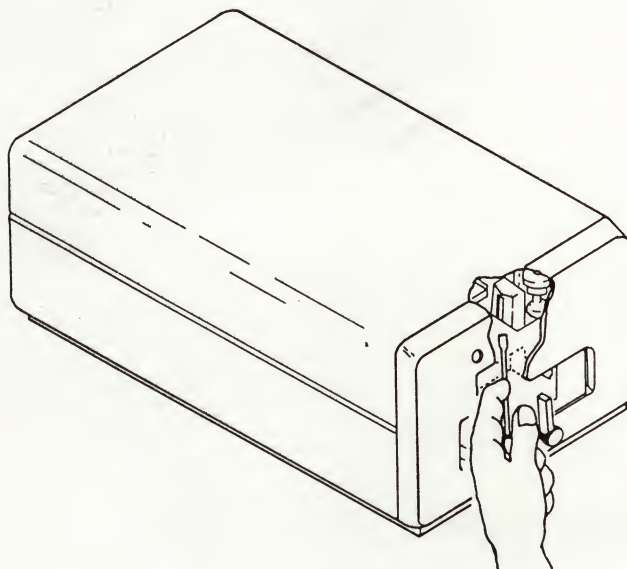


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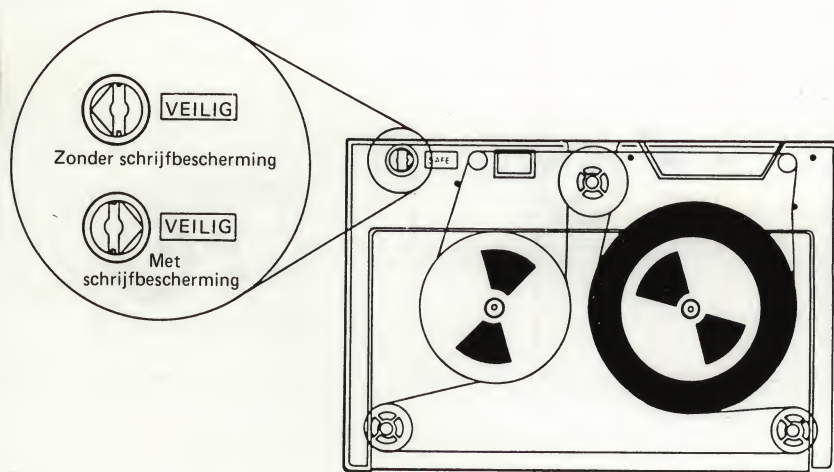


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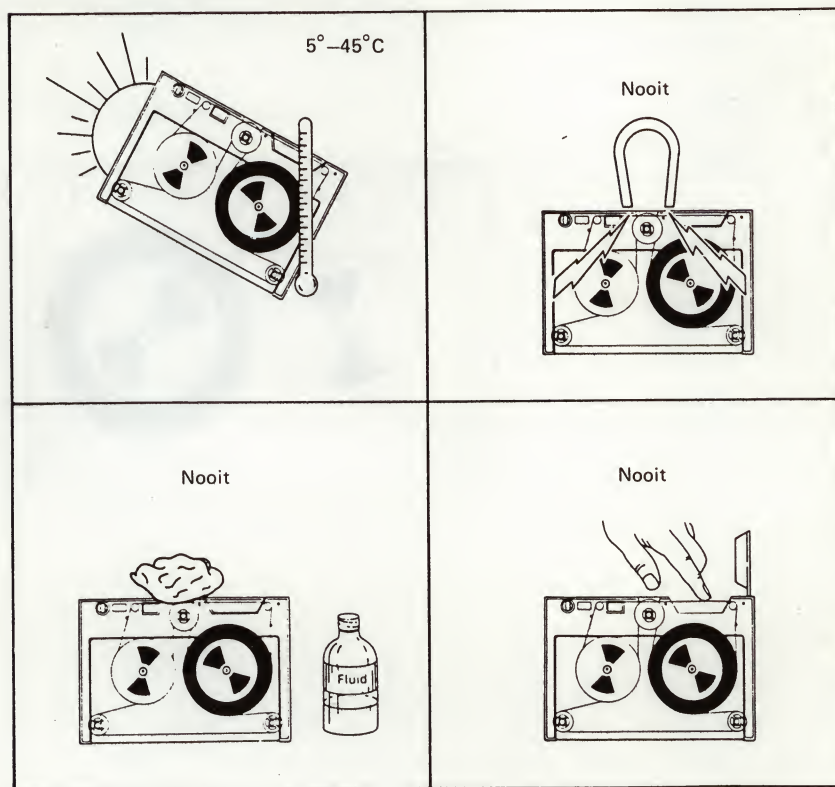
Maak, indien u nieuwe cassettes gebruikt, de kop van het bandstation schoon nadat deze twee uur in bedrijf is geweest. Reinig de opnamekop daarna om de 20 uur. Gebruik voor het schoonmaken een wattenstokje, dat in een ontvettend middel (bijvoorbeeld trichloortrifluorethaan) is gedompeld.



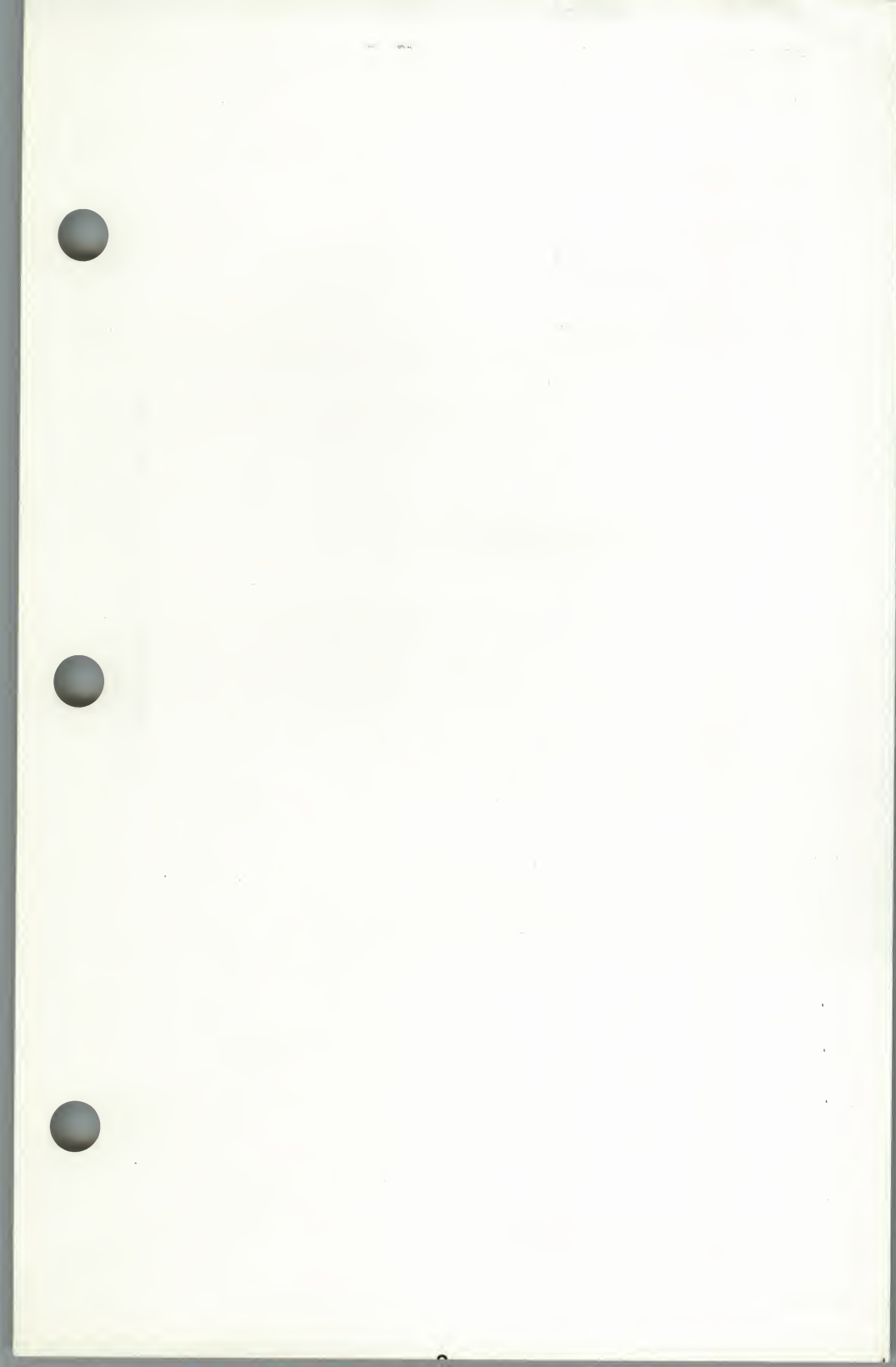
## Magneetbandcassettes



## Het onderhoud van magneetbandcassettes









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**IBM 6157 Magneetbandstation**  
**Installatie en bediening**

Voeg deze instructies toe aan het desbetreffende hoofdstuk van uw "System Guide to Operations", als u uw IBM 6157 Magneetbandstation hebt geïnstalleerd.

---

Radio-ontstoord apparaat volgens EEG richtlijn 82/499/EEG.

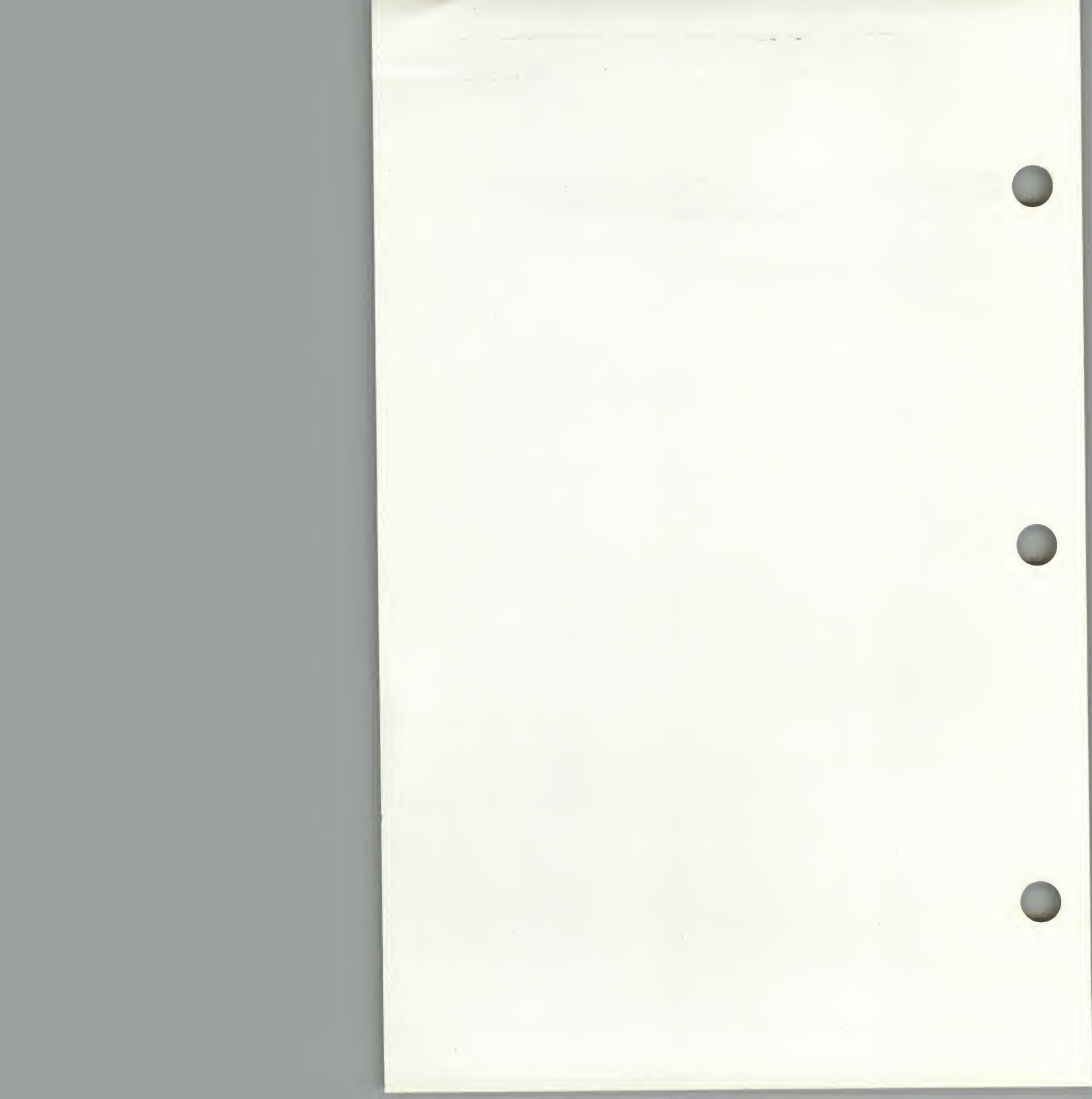
IBM is niet verantwoordelijk voor radio- of televisiestoringen die worden veroorzaakt door het onbevoegd wijzigen van deze apparatuur. De gebruiker is verantwoordelijk voor het opheffen van dergelijke storingen.



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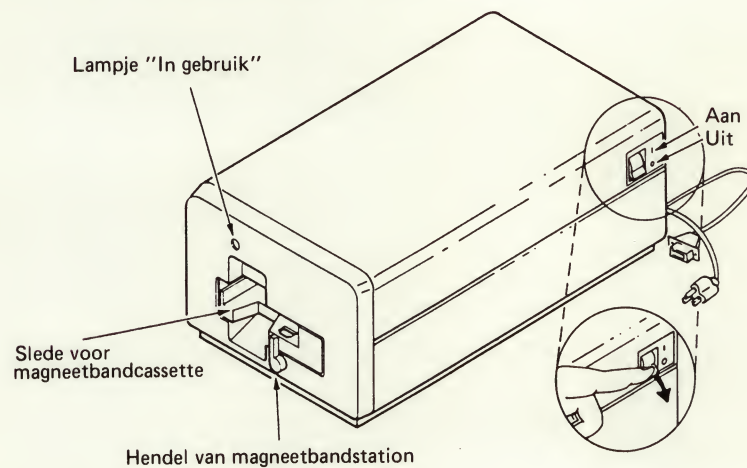
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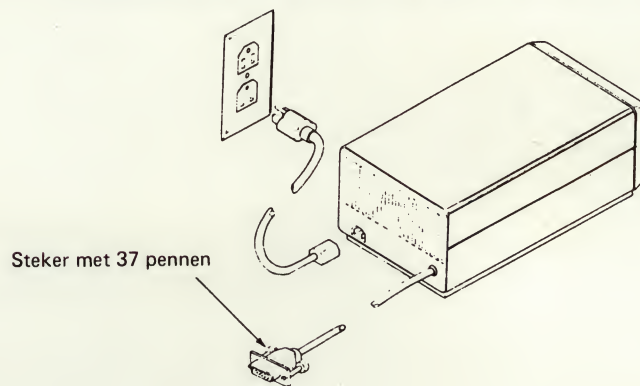


## Het installeren en bedienen van het IBM 6157 Magneetbandstation

1. Zet de netschakelaar uit (op O).



2. Sluit het netsnoer aan op de systeemmachine en op een geaarde wandcontactdoos. Sluit daarna de signaalkabel aan op de systeemmachine.





Het magneetbandstation werkt met uitwisselbare bandcassettes, die een oningedeelde capaciteit van 45 M-bytes of 55 M-bytes hebben.

Uw bandcassette moet voldoen aan de voorgestelde ANSI standaard X3B5-83.71. De volgende bandcassettes zijn voorbeelden van acceptabele cassettes:

Model- en opslagnummer	Producent
DC 300 XL/P (45 M-bytes)	Minnesota Mining and Manufacturing, Corp.
400442 (45 M-bytes)	Data Electronics, Inc.
400555 (55 M-bytes)	Data Electronics, Inc.

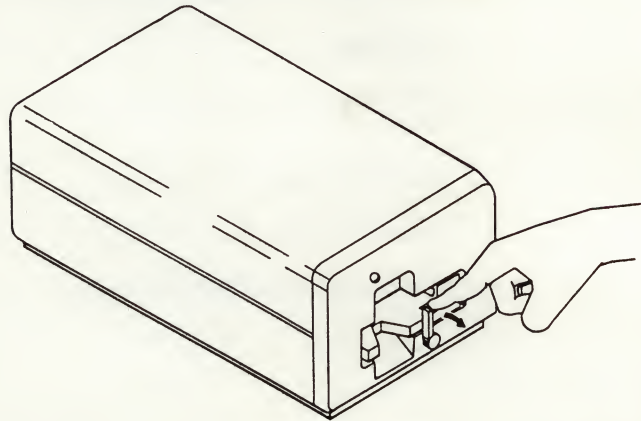
Voor meer informatie over bandcassettes kunt u zich wenden tot de volgende distributiecentra:

Data Electronics, Inc.  
Telex 697118 TWX 9103351150

Minnesota Mining and Manufacturing Corp.(3M)  
Neem contact op met de vertegenwoordiger van 3M.

## De bediening van het IBM 6157 Magneetbandstation

1



2.

